

POWER ANIMATOR V7

MAKE
BELIEVE

LAVA
WIND
MOOD LIGHTING
PLASMA
BEASTS
FIREWORKS
TORNADOES
HAIR
HELICOPTERS
LANDSCAPES
EXPLOSIONS
FLYING CARPETS
SNOW
FLARES
KUNG-FU
FACES
CITYSCAPES
SMOKE
SKIN
HALLUCINATIONS
FLAMES
SHRAPNEL
PUTTY
GHOSTS
WATER
FLOODS
LASERS
STUNTS
F/STOP
DROIDS
TURBULENCE
INFERNOS
JELLYFISH
BUBBLES
PHASERS
TORPEDOES
SWEAT
TENTACLES
FOG
SPOTLIGHTS
SUNSETS

Alias | **wavefront**

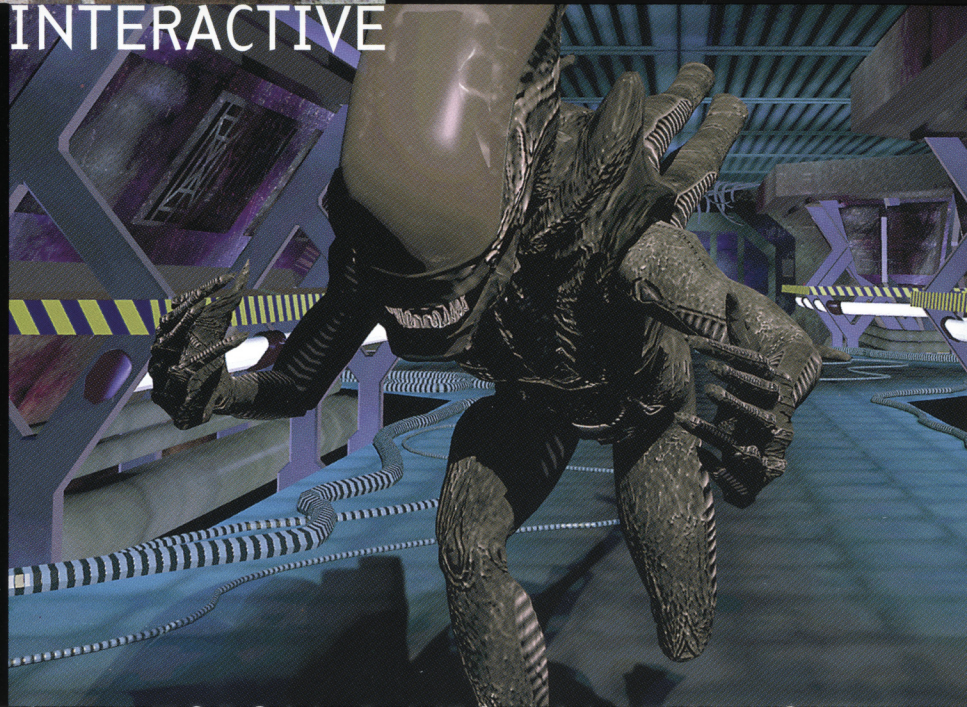
A  Silicon Graphics Company

FILM & VIDEO

CREATE the most sophisticated digital imagery. Simply. Alias|Wavefront has the richest suite of tools for characters, sets, and mind-blowing imagery for feature films, television commercials, network IDs, and long form animation. Developed specifically for artists, our software helps animators, set designers, and directors focus on their vision. And with tools for environments, skin, hair, muscles, explosions, glows, wind, gravity, motion, sound, lighting, and camera effects, producers of digital content create entertainment that would be impractical or impossible using traditional approaches.

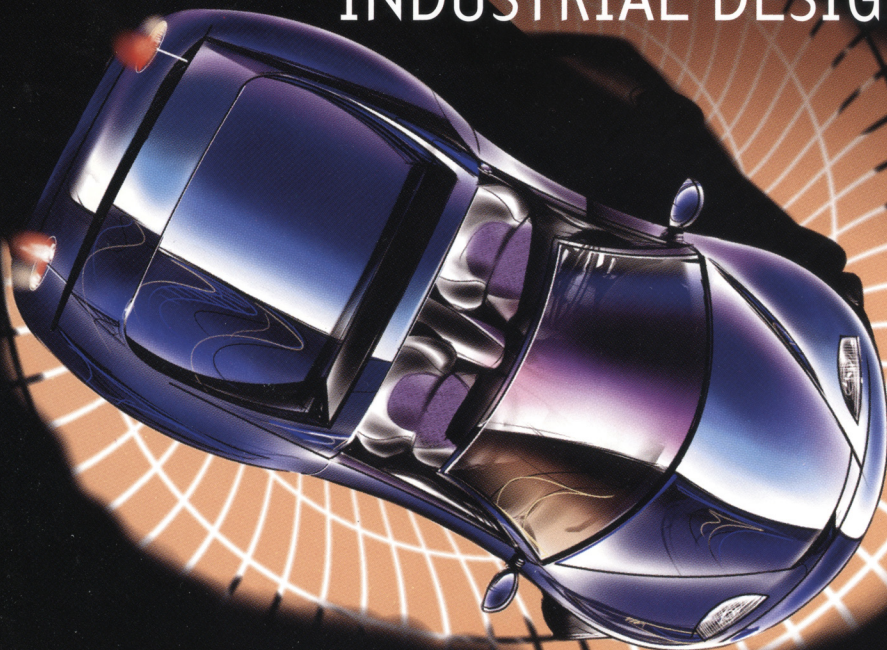
GAMES & INTERACTIVE

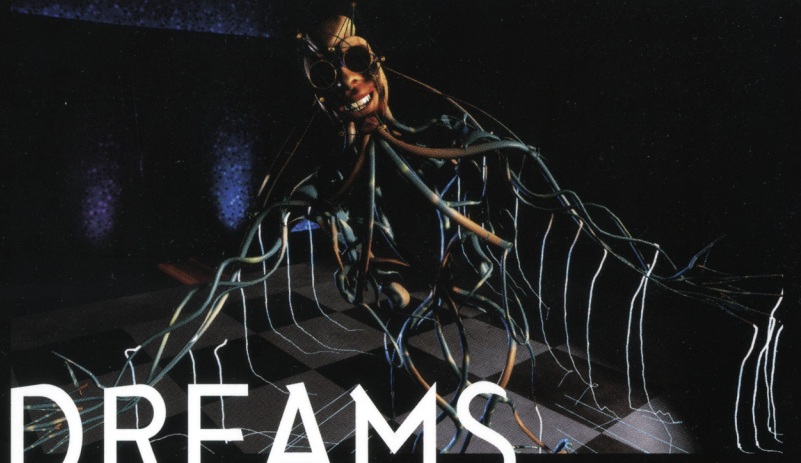
GAMES and interactive media developers find all the tools they need to dig deeply into their imaginations and create killer content that reaches out and grabs people. Our user interface streamlines the creative process for both novices and power users. And with features specially designed for games and interactive media — such as polygonal reduction, flexible motion capture, and color quantizing — Alias|Wavefront software helps developers be more creative and productive, turning out imagery that's as realistic, surrealist, or other-worldly as they want it to be.



INDUSTRIAL DESIGN & VISUALIZATION

INDUSTRIAL designers can work in a single environment to sketch concepts freely in 2D — with all the looseness and emotion of marker and paper — then refine concepts and build surface-perfect 3D models that can be directly imported into CAD/CAM systems. Designers get greater control over the integrity of their design vision from art to part. Marketers get photo-realistic digital prototypes. Engineers get products into production faster. And consumers get products that look better, feel better, and work better.





WHERE DREAMS COME TRUE

TURN YOUR MIND'S EYE INWARD.

YOU SEE A TELEVISION HURLING THROUGH SPACE,
THEN CRASHING INTO A PEDESTAL —
EXPLODING IN A SHOWER OF GLOWING SPARKS.

YOU SEE AN ELECTRIC RAZOR THAT'S BEEN
PERFECTLY SHAPED BY A PARTIALLY CLASPED HAND.

YOU SEE A SENSUOUS, SCULPTED BODY THAT TURNS
TWO WHEELS AND EVERYBODY'S HEAD.

YOU SEE A GOOSE TALKING TURKEY WITH A PIG.

THIS IS ALL HAPPENING.

INSIDE YOUR HEAD.

SKETCH. PAINT. MODEL. ANIMATE. SYNC. RENDER.
THIS IS THE PROCESS.

THE OBJECTIVE
IS ALWAYS THE SAME.
TO LET OTHERS SEE WHAT YOU SEE.

TO GIVE LIFE TO SOMETHING
THAT NEVER EXISTED BEFORE.

TO MAKE YOUR DREAM COME TRUE.





IMAGE CREDITS

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LEFT PAGE

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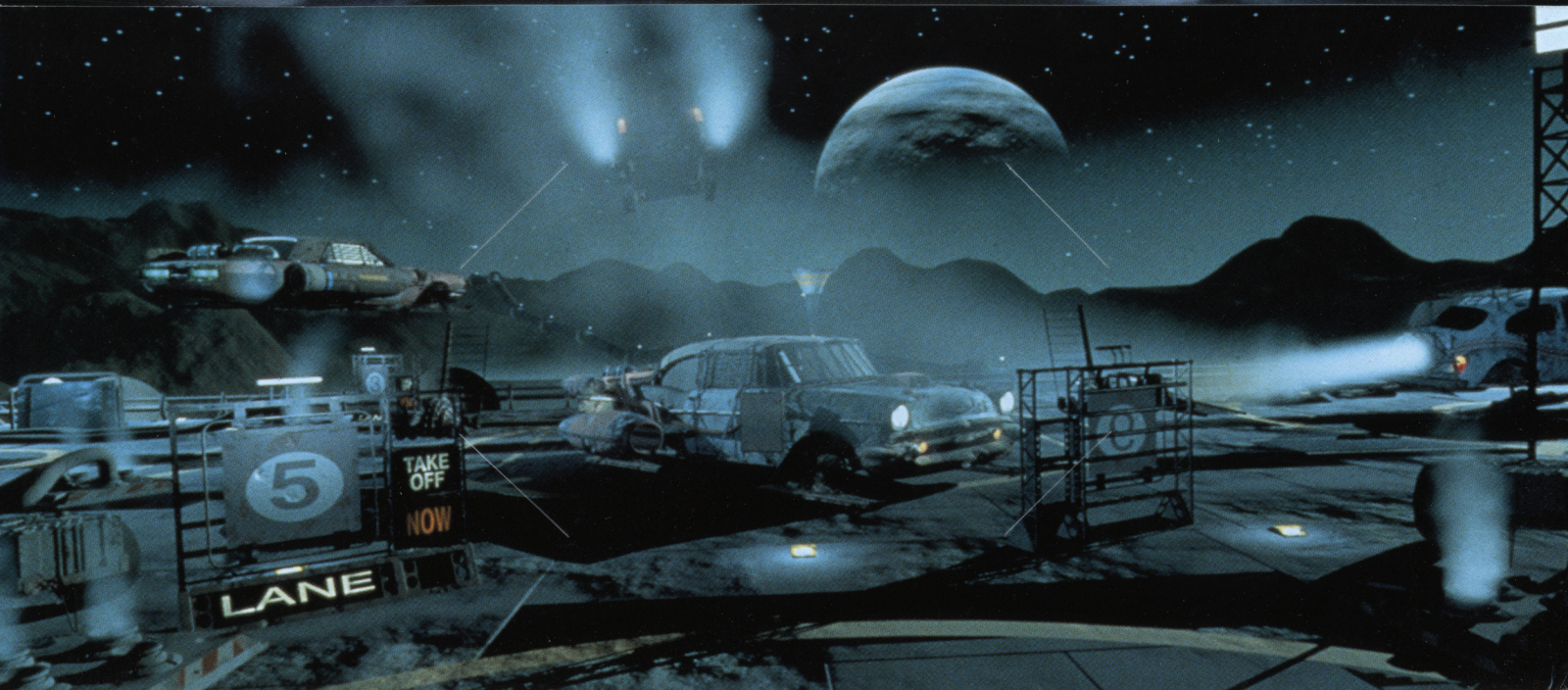
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RIGHT PAGE

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OVERLEAF

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 Design: Susanne Pierce,
 Photography: Rick English





THE HISTORY. THE FUTURE.

CREATED FROM THE MERGERS OF

ALIAS RESEARCH INC.
WAVEFRONT TECHNOLOGIES, INC.

ALIAS|WAVEFRONT IS A WHOLLY OWNED,
INDEPENDENT SOFTWARE SUBSIDIARY
OF SILICON GRAPHICS, INC.

THE BOLDEST SOFTWARE COMPANY IN THE INDUSTRY.
WITH THE BIGGEST VISION OF THE FUTURE.
AND THE CONFIDENCE TO START AT THE BEGINNING.

TO DELIVER THE NEXT GENERATION TOOLS
FOR THE CREATION OF DIGITAL CONTENT.

FOR THIS GENERATION.

TECHNOLOGY THAT DOESN'T FEEL LIKE TECHNOLOGY.

SOFTWARE THAT'S
BETTER, LIGHTER, FASTER.

MORE ACCESSIBLE. MORE POWERFUL.
MORE INVISIBLE.

THIS IS ALIAS|WAVEFRONT.
RETOOLED. REFINED. REINVENTED.



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THE DIRECTOR'S PLAYGROUND

AJUST THE LIGHTS. LENGTHEN THE SHADOWS. ADD FOG. SOFTEN THE FOCUS. REDUCE DEPTH OF FIELD. NOW JUMP. TWICE AS HIGH. NO. LOWER. TURN ON THE WIND. MORE TURBULENCE. PERFECT.

POWERANIMATOR V7.0 LETS ARTISTS CREATE. AND DIRECTORS DIRECT.

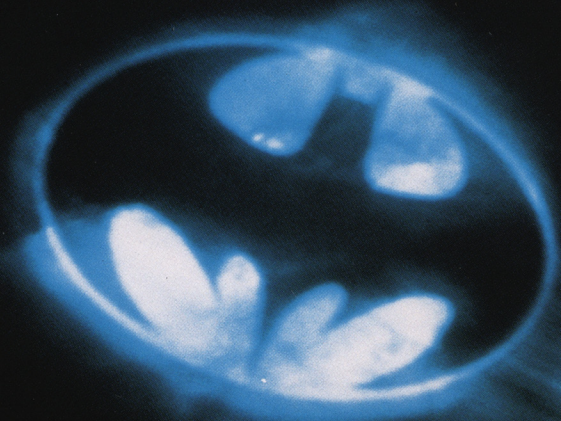
WITH POWERANIMATOR'S ADVANCED SUITE OF DIGITAL TOOLS FOR CREATING RICH CINEMATIC IMAGERY, DIRECTORS CAN NOW CONCEIVE AND DIRECT ALL THE ACTION WHILE CONCENTRATING ON THEIR VISION. WITH THE FEEDBACK AND TURNAROUND TIME OF TRADITIONAL APPROACHES FOR INSTANT CREATIVE GRATIFICATION. AND WITHOUT GETTING BOGGED DOWN IN THE TECHNOLOGY.

LINGER ON THE BEAST. CARESS ITS SKIN. TRACK ITS VEINS. UP TO THE HEAD. HOLD ON THE EYES. CATCH THE REFLECTION. SHOW ANGER. MADNESS. FEAR. NOW MAKE SPARKS LEAP OUT OF ITS EYES.

NO MORE LONG SHOTS OF ACTORS IN BODY SUITS. THE AUDIENCE CAUGHT ON TO THAT TRICK LONG AGO. THE ILLUSION HAS TO BE SEAMLESS. WITH POWERANIMATOR V7.0, IT IS.

BEYOND ALLOWING FILMMAKERS TO RECREATE TRADITIONAL METHODS BETTER, FASTER, AND CHEAPER. POWERANIMATOR V7.0 ALLOWS THEM TO CREATE IMAGERY THAT WOULD BE IMPOSSIBLE OR IMPRACTICAL TO CREATE ANY OTHER WAY. IMAGERY WE COULD ONLY DREAM ABOUT BEFORE. WHILE DISSOLVING THE BARRIERS BETWEEN EFFECTS AND NON-EFFECTS PRODUCTIONS.

CLOSE-UP ON SURFER. RIDE THE WAVE. TRANSFORM IT INTO A DRAGON. A SERPENT. A MERMAID. CHOOSE HAIR COLOR. CURLY. WAVY. GORGEOUS. NOW PULL IN ON THE FACE. SPEAK. CATCH THE EXPRESSION. MORE EMOTION IN THE MOUTH AND EYES. YES.



POWERANIMATOR'S UNIQUE INTEGRATED APPROACH STREAMLINES THE CREATIVE PROCESS FOR POWER USERS WHILE ACCELERATING THE LEARNING PROCESS FOR NEW USERS. AND WITH THE INDUSTRY'S BEST TOOLS FOR 3D MODELING, CHARACTER ANIMATION AND SPECIAL EFFECTS, POWERANIMATOR V7.0 LETS YOU PRODUCE ENTERTAINMENT THAT'S AS REALISTIC, SURREALISTIC, OR OTHER-WORLDFLY AS YOU WANT IT TO BE.

A DIRECTOR'S DREAM.



CREATE NEW LIFE FORMS

CharacterBuilder™ lets you create and animate life forms that could keep Darwinian types guessing forever.

Make cheek muscles move under taut skin. Specify finger webbing, joints and wrinkles. Exercise minute control over how skin tucks between joints. Work with graphical representations interactively or develop mathematical expressions to manipulate the geometry procedurally.

CompuHair™ lets you grow hair and fur that looks and moves like real hair. Not plasticine or shiny metal. Style it, color it, curl it, or let it all hang out and blow in the breeze.

When you've got your character looking just right, make him talk. In fact, make his whole face talk. Scrub the audio track back and forth to fine-tune 3D facial expressions and poses. View multiple channels of animation – lip movements, eye bulges, forehead wrinkles, or tail wagging – from any point in 3-space.

Plug human actors into MotionSampler 3™ and watch them drive 3D characters in real-time. With hardware-supported textures. Calibrate your actors on the fly while they dance or kick-box onscreen. Use our powerful dataflow interface to apply filters to each motion sensor to exaggerate or modify any movement. Direct your human actor as he fights with your digital beast in real time. Sample the action with capture hardware based on magnetic or optical technology.



Then 3D morph your creation with ShapeShifter™. Pick a 3D model and blend it with other models, using clusters to control all the subtleties. Customize the interpolation by modifying expressions. Turn a sweet angelic face into a diabolical visage with horns growing out of its chin.

MODEL ORGANIC STRUCTURES AND INORGANIC COMPOUNDS

Dream it up. PowerAnimator V7.0 tools let you build life forms, objects and environments that couldn't possibly exist – except in your head – as well as imagery that would take weeks to create using traditional techniques.

Model in super-smooth NURBS or lightning-quick polygons.

CREATE IMAGERY THAT WOULD BE IMPOSSIBLE OR IMPRACTICAL USING TRADITIONAL TECHNIQUES.





Access an incredible range of tools to generate any shape, from futuristic weapons to sexy spaceships to castles made of sand that slip into the sea. With construction history, you alter an underlying curve or surface, and the system automatically re-applies everything you've done to all linked surfaces. So that you can fine-tune the geometry to match your ever-evolving vision — rather than the other way around.



YOUR
ARSENAL
IS
MASSIVE —
LENS
FLARE,
MOTION
BLUR, FOG,
GLOWS,
VOLUME
LIGHTS,
EMBERS,
LAVA,
PLASMA
BLASTERS

INTEGRATE THE ACTION — AND REACTION — WITH SPECIAL F/X AND RENDERING

Integration is a powerful reason why Alias|Wavefront is the leading force in computer animation.

Our integrated particle system gives you particles that act like real particles. They cast shadows. They dance with each other and with animated geometry. They can be lit. Make killer fire, sparks, smoke and fireworks. Plus water, bubbles, grass, trees, seaweed, clouds, jellyfish, snow, hail and anything else you care to subject your digital characters to.

Bang it hard — advanced dynamics provide digital simulations of physical phenomena such as wind, gravity, torque, collisions, turbulence, friction, and angular momentum.

Add mood and magic with Digital OptiF/X™. Your arsenal is massive — lens flare, motion blur, fog, glows, volume lights, embers, lava, plasma blasters. Render complex effects via a distributed rendering system that harvests CPU cycles from your network farm of Silicon Graphics workstations, or harness the power of high-end Silicon Graphics multi-processor servers.

And when you're ready to blow up the whole damn set, blow it up good. Our optical effects work with our integrated particle and dynamics systems to give you ultra-realistic digital pyrotechnics that breathe true life into your explosive urges.

With the Real-World Camera Lens™ feature, you control your digital lens with real-world parameters like focal length, f/stop, lens focus, field-of-view and film format. Plus, PowerAnimator's Image Planes feature allows you to import and roto-scope imagery from live-action background plates — to blend the real world and the digital world.



USER INTERFACELIFT

We've taken a whole new look at the user interface. We started with PowerAnimator's integrated environment — a single, unified environment that lets you move from modeling to animation to rendering and back again in any order as you continuously refine your imagery.

Then we added handy customizable toolshelves where you can keep all your favorite tools, reducing the number of mouse clicks required for power operations.

Plus, PowerAnimator V7.0 includes marking menus. Nobody else has this, and it's very cool.

With marking menus, you can make a menu selection from anywhere on the screen simply by holding down your mouse or stylus. Up pops a radial menu — fully customizable — with all the commands you need. Then a quick gesture left, right, up, or down selects the command you want.

Once you become familiar with marking menus, you don't even have to wait for the radial menu to pop up. Just zip zip. Very cool. And very fast.

FUN AND GAMES

We also give you a complete set of tools specifically developed for games and interactive media developers. This makes PowerAnimator the software of choice for today's 2D game platforms, next generation 3D games, CD ROMs, Web pages, and other interactive media. Fine-tune NURBS or polygonal models, preview animated sprites, and quantize away pixels for optimal color reduction. Export to major platforms, including Nintendo Ultra 64™.

PLUG-IN ARCHITECTURE

Keep your coders happy producing hand-crafted procedural effects while your artists create to their heart's content.

The OpenAlias plug-in API means you can directly access the gamut of PowerAnimator data structures from custom programs — including 3D models, textures, animations, lights, and cameras — using C or C++. Add custom commands to menus, and define your own option boxes. We also offer the OpenRender interface for programmable shaders,

textures and lights, and the Scene Description Language (SDL™) for controlling the rendering system.

We know that you like to mix-and-match the tools in your shop. Our Open Digital Studio™ environment supports a metric tonne of data interchange standards including OBJ, Inventor™, Avid Open Media Framework™, QuickTime™, RIB, Cineon, TIFF, MPEG, DXF, IGES and more.



**CONTROL YOUR DIGITAL LENS
WITH REAL-WORLD PARAMETERS
LIKE FOCAL LENGTH, F/STOP, FOCUS,
FIELD-OF-VIEW AND FILM FORMAT**

IMAGE CREDITS

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POWERANIMATOR

Modeling

Both NURBS-based and polygonal modeling.

- **Basic Modeling** - Generate and edit surfaces by: revolving, extruding, skinning, defining boundary curves and faces, trimming, filleting, and defining bevels.
- **Surface Blending** - Automatically connect textured surfaces together with a seamless patch.
- **QuickShade™** - Model and animate shaded objects in real-time.
- **Curve on Surface** - Draw and edit curves directly on a 3D surface.
- **Construction History** - "Remembers" how models have been constructed and automatically rebuilds surfaces during editing.
- **Polygonal Converter** - Convert a NURBS object to a user-specified number of triangles or quads.
- **Polygon Tools (Base)** - Create/import models; split/merge vertices; extract/combine polygons; flip/unify normals; add polygons.
- **Polygon Tools (Advanced)** - Extrude polygon/edge; transform polygon/edge; insert vertex/edge; split/merge polygon; collapse edge/polygon; delete vertex/edge; explode/reduce polygons; highlight non-planar quads; make 1-sided; clean.
- **Stages** - Switch between different characters, "sets," or "lighting stages."
- **Animation Sweep** - Create objects from user-defined animated curves or surfaces.

Animation

Tools to animate objects, lights, cameras, surface characteristics, and shading parameters.

- **Basic Animation** - Define animations using keyframes, motion paths and CV's.
- **Action Editor** - Set and adjust actions using an interactive graphical display of parameter curves.
- **Cut, Copy & Paste** - Point & click editing of animations of hierarchical objects.
- **Animation Preview** - Play back animations in wireframe or rendered flipbooks with sound.
- **Sprite Previewer** - Play back one or more sprite animations and fine tune their interaction with each other and with the background.
- **Set Motion** - Set and adjust an object's or camera's orientation along a motion path.
- **Randomizer** - Randomly animate multiple objects such as bubbles or flocks of birds.

- **Image Planes** - Rotoscope with multiple planes that can be animated, zoomed, tracked, assigned depth and stenciled.
- **Dynamics** - Simulate physical phenomena such as torque, wind, gravity, friction, air turbulence, and collisions.
- **Expressions** - Animate using mathematical relationships.

Rendering

Tools to create photorealistic images.

- **Digital OptiF/X™** - Interactively create camera and lighting effects, such as lens flare, translucence, fog, glows, explosive effects, volume shadows and lights.
- **Real-World Camera Lens** - Cinematography interface for adjusting depth of field, f/stop, focal distance, film format. Multiple simultaneous cameras per scene, variable near/far clipping planes, and stereo viewing.
- **Lights** - Ambient, point, spot, directional, linear, area, volume.
- **Quantizer** - Automatically set up optimum color maps for reduced color spaces.
- **QuickRender™** - Quickly render for rapid feedback, including shadows and volume spotlights.
- **Composite Renderer** - Special anti-aliasing routines to smoothly blend sprites into a scene.
- **MotionBlur** - Apply realistic blurring effects to individual objects or an entire scene.
- **Hidden Line Rendering** - Generate smooth outlines for cartoon-like renderings.
- **Quad Rendering** - Assign texture swatches on a polygon-by-polygon basis from a single palette of rectangular textures.
- **Polygon Rendering** - Edit per-polygon game-specific features, such as texture flipping and rotation, and assign game-specific attributes to polygons (color depth, sorting mode, back-face culling).
- **Distributed Render Control** - Manage rendering projects over a network through an intuitive, graphical interface.

Open Digital Studio

An open environment for integrating digital media solutions from multiple vendors and programming custom effects.

- **OpenAlias™ Plug-In Architecture** - Complete C and C++ access to live data including 3D models, animations, lights, cameras and textures.

- **OpenModel™** - Write your own programs with file-level access to Alias internal data structures.
- **OpenRender™** - Write your own shaders, textures, and lights.
- **SDL™ Renderer** - Write custom scripts to control the renderer.
- **Alias 3DCD™** - A CD-ROM of 3D models, environments, textures, and animations.
- **Input** - IGES, VDA/FS, VDA/IS, OBJ, DXF, StyleGuide, Inventor, PRO/E Render, STL.
- **Output** - IGES, Apple QuickTime™, Avid OMF™, TIFF, Pixar RenderMan® (RIB), DXF, OBJ, Inventor, STL, SLC, SGI MoviePlayer.
- **Video Device Support** - Abekas, Chyron, SGI, Digital 4:2:2.

OPTIONS

Advanced Animation

Tools to create advanced character animation and special effects.

- **Muscle & Skin** - High-level system to create animated characters with bulging muscles, wrinkling skin, webbing between fingers. Makes it easy to control folding and tucking of skin around joints.
- **ShapeShifter™** - Blend the shapes of two or more 3D models with precise control over how each one influences the final model.
- **LipSync and Facial Animation** - Create lifelike facial movements through a highly interactive interface. Easily match mouth positions to a soundtrack to create realistic animations of talking characters. Simultaneously and independently animate different parts of the face.
- **MotionSampler 3** - Real-time performance animation with hardware-supported textures. Simple interface for matching the dimensions of the actor to those of the model. Dataflow interface for adding custom filters. Support for Ascension, Motion Analysis, Polhemus, and The Monkey™.
- **Particle Systems** - Produces solid and gaseous particles as well as extremely realistic-looking hair. Fully-shaded preview of 3D particles that interact with forces, geometry and light.
- **Inverse Kinematics** - Position articulated characters in full 3D with point, orientation and aiming constraints that can be animated.
- **PowerCluster™** - Create animated deformations using curves, curve lattices or hierarchical skeletons.
- **Flow** - Deform an object as it moves along a path.
- **Warp** - Interactively apply animated forces to objects (patches, polysets, or faces) to create unique surface deformations.

PowerModeling

Advanced modeling tools for maximum flexibility and control in creating complex freeform surfaces.

- **Stitching/Booleans** - Stitch NURBS surfaces together to form shells, and apply subtract, intersect and union operations across multiple NURBS models.
- **Automatic Polygon Reduction** - Reduce the number of polygons in a model while maintaining its shape.
- **Align** - Modify two curves or surfaces to achieve continuity.
- **N-sided** - Create surfaces by blending up to eight bounding curves.
- **Rebuild Surface** - Interactive tool for surface fitting.
- **Curve Networks** - Create surfaces from networks of curves and automatically maintain user-specified continuity relationships with adjacent surfaces, as you edit the curves.
- **Concept Modeling** - Create 3D "sketchy models" by importing 2D conceptual sketches and constructing 3D surfaces from 2D outlines via curve networks, perspective matching, and texture projection tools.
- **Birail** - Create surfaces by sweeping one or more curves along two path curves.
- **Swept** - Create surfaces by sweeping a curve along a path.
- **Square** - Create surfaces from four bounding curves.
- **Curve & Surface Smoothing** - Interactively modify curves or surfaces to achieve a more even curvature distribution.

PowerTracer™

Raytrace images faster using multiprocessor systems.

PowerCaster™

Raycast images faster using multiprocessor systems.

StudioPaint 3D™

Paint and sketch directly on 3D surfaces with real-time brushes and pencils.

Composer™

Assemble video clips, animation sequences, and stills in layers; sequence them in time; and add special effects, audio, transitions, titles, and annotations.

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COMPOSER

COMPOSER

CHANGE
YOUR
REALITY

INTERACT
SPIN
ROLL
TUMBLE
COMPOSITE
BLUR
WORDS
SATISFY
OPEN
PLUG IN
CUSTOM
DEPTH
BLEND
SHARPEN
CONTROL
EXCITEMENT
VOLUME
GAMES
SPHERE
LOGICAL
TRANSITION
TWIST
REMOVE
POSITION
PUSH
ZOOM
SCALE
DISTORT
BEND
LAYER
BEADS
STORM
COLORIZE
GEL
BROADCAST
LENS
SHATTER
NEON
LIGHTS
MORPH
WARP

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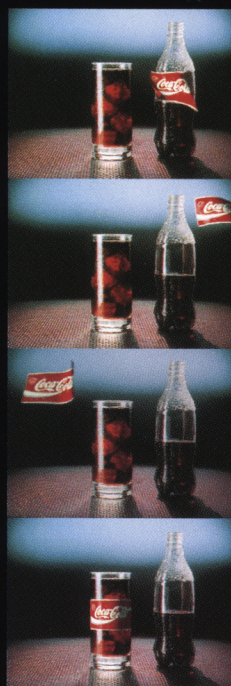


PLAY FORWARD

INTEGRATE this sequence in the middle of the ballroom dance? Time to crash this party. Let's see. Zoom in on that guy in the tux. Move him forward a bit. OK, let's morph...

Composer™ is the advanced image, effect, and audio compositing engine for digital image production. It puts the most powerful tools right at your fingertips, letting you create, enhance, and record high-impact images - anything from fast-and-furious video games to epic films.

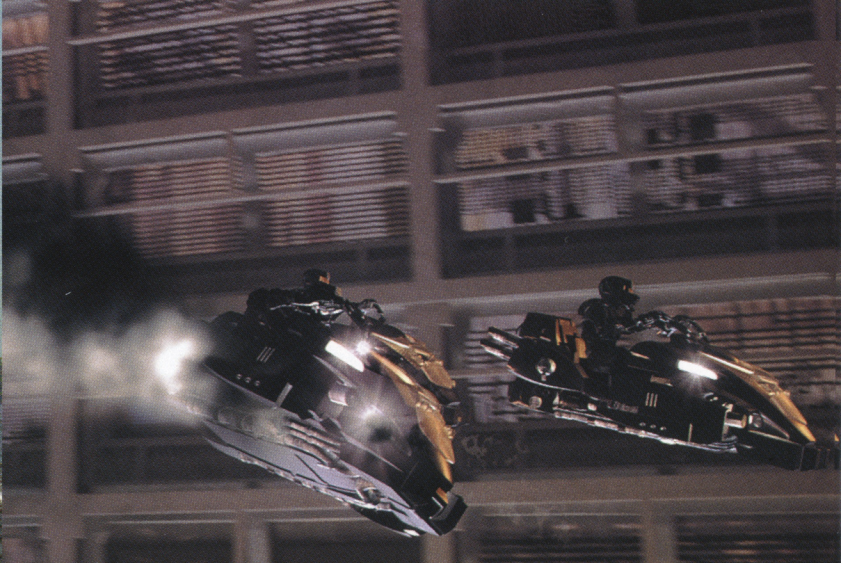
Start with the layering. OK. Now make him bigger. Much bigger. Let me hear the fabric rip. Match the visual. Turn it up. Make the fur grayer. Good. Now the ears. Sharpen the eyes. Excellent. Wait, The lighting looks harsh. Backtrack a second and a half. Let's try animating the lighting sequence....



With Composer, you input video clips, animation sequences, still images, audio, and mattes. Composite each of these elements together. View exactly how it's all going to look - before output - then take your finished sequence to video, film, or any of the many supported digital file formats.

Good. Now his face. Warp the tendons in his neck. Yes, that looks frightening. I can feel the screams. Now... let's see it all together. Real-time playback. Couldn't do this without it. OK. Nice integration. Everything checks, client approves. Let's roll it.

Composer gives you extensive control over the creative process within your production process. You have seamless integration of post-rendering animation tools. Total reliability.



FLEXIBILITY

Film. Video. Games. Interactive CD-ROM. What's it going to be today?

If you're like most post-production professionals, you've got to be a jack of all trades. And a master of each and every one of them.

Lucky for you, there's Composer.

Composer supports most image, animation, and audio files being used on computers today. It even has Z-Depth Compositing. This unique feature allows you to composite 3D elements based on their Z location from their original modeling application. Plus, Composer lets you invoke a 3D rendering engine (if installed) as part of the compositing process — so you optimize your disk space and work more efficiently.

Composer also controls video devices (stand alone or over a local network, digital disk, or tape) for recording and playback.

You have the freedom to explore.

POWER

Composer lets you work with any number of images and combine them into any number of layers — with tools for adding 2D/3D effects, color correction, palette reduction, image resizing, Post Script text, and repositioning.

Make changes to any size project, in any resolution, at any point in the process, with a click of your mouse.

"A REAL STRENGTH OF COMPOSER IS THAT IT HANDLES ANY RESOLUTION AND IS COLOR-DEPTH INDEPENDENT FOR UP TO 16 BITS PER CHANNEL TO US. THAT IS VERY IMPORTANT FOR MAKING OUR IMAGES LOOK THE BEST THEY CAN."

TIM MCGOVERN,
SONY PICTURES
IMAGEWORKS

CONTROL

Composer has a user interface that's configurable to the way you like to work, with the tools you need.

As you master more and more of Composer's built-in features and capabilities, you can expand your tool set by customizing and combining any of the functions. This allows you to create your own icons and add them to the Composer interface.

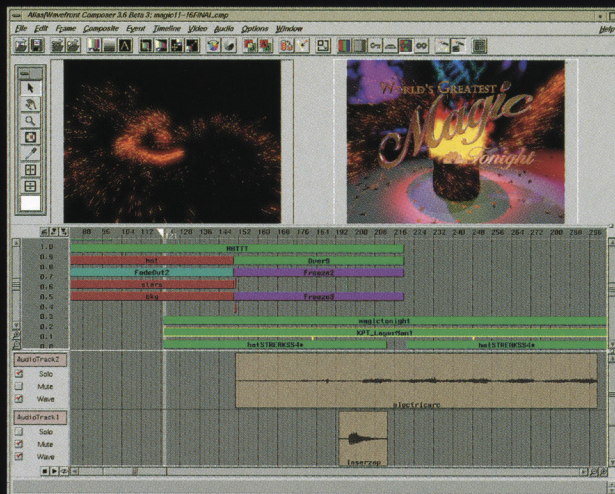
Composer also comes with a Plug-in Toolkit. Plug-ins enhance the basic feature set by providing add-on functionality. Plug-ins are already available from third party companies whose area of expertise has provided Composer with a richer set of tools for blue-screen removal, image filters and layering options. Composer is the recognized industry standard, so you know that third party developers will continue to develop plug-ins that extend Composer's capabilities into areas of visual effects, post-production utilities, and image processing.

CONFIDENCE

With the largest worldwide installed base for digital compositing on the Silicon Graphics platform, you'll have plenty of resources to draw on. Composer has a news group on the Internet — <http://www.aw.sgi.com> — that allows users to communicate and trade ideas on a daily basis. And, with the biggest R&D commitment in the business, you'll benefit from upgrades and new features that will keep you on the leading edge.

THE COMPOSER PROCESS

COMPOSER HAS A TIME-LINE BASED INTERFACE THAT PROVIDES TOTAL ACCESS TO ALL LAYERS AND EFFECTS AT ANY TIME.



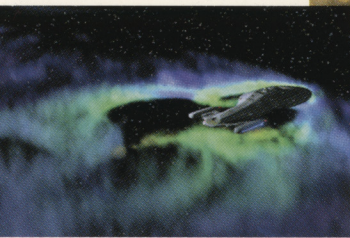
WITH COMPOSER YOU HEAR YOUR WORK AS WELL AS SEE IT. INTERACTIVELY.



ENHANCE YOUR 3D APPLICATION WITH THE ULTIMATE TOOL FOR PRECISE CONTROL OF THE DIGITAL COMPOSITION PROCESS.

COMPOSER COMPOSER

Composer Features



Resolution Independent

Work with any resolution of film, video, CD-ROM, game machines, on-screen presentations. Anything.

64 Bit Color Depth

(16 bits per channel)
Work in the highest fidelity color space for the very best compositing.

Network-Based Device Control

Share recording and playback equipment between all groups over the network.

Multi Processor Option

(batch and single image)
Optimize the rendering speed by utilizing multiple processors for batch or single image rendering.

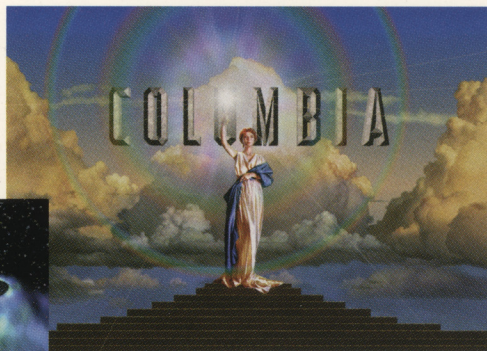
Z-Depth Compositing

Composite elements in 3D space.

Audio

CD quality audio, any number of tracks, all elements can be animated. Match visual effects with sound effects, musical cues, etc.

IMAGE CREDITS COVER: Species: Courtesy of MGM Pictures/Boss Studios • **INSIDE SPREAD** (top row, left to right): Martel Cognac: 3D Computer Animation - 601 FX • Crimson Tide: Courtesy of Dreamquest Images ©1995 Hollywood Pictures • Heaven's Prisoner: Courtesy of Dreamquest Images ©1995 Savoy Pictures • Judge Dredd: Photo courtesy of Kleiser-Walczak Construction Co. and Cinergi Pictures Entertainment, Inc. and Cinergi Productions, Inc., background visual effects by Mass Illusion • (Left page) Star Trek Generations: Images provided courtesy of Paramount Pictures. Digital effects by Santa Barbara Studios • Coca Cola: DESIGNefx • NBC Magic: NBC • **BACK PAGE:** Star Trek Generations: Images provided courtesy of Paramount Pictures. Digital effects by Santa Barbara Studios • Columbia Logo: Designer/Director: Joel Hynek, First Light, Inc. Animation: Kleiser-Walczak Construction Co. ©1993 Columbia Pictures, Inc.



Professional Production Techniques

- **Fit (scale), fade, gamma** - Automatically resize one or all images, change gamma levels or control fades; in and out.
- **4 corner image lock** - Provides the ability to anchor each of the 4 corners while performing 2D and 3D moves on the rest of the image area.
- **Glow effects** - Variable width, height, fall-off, color.
- **Layering** - Add, atop, in, mixer, out, over, common, difference, displace, mixer mask, multiply, switchmatte, xor. Tools to composite all elements in any number of variations, or combinations.
- **Transitions** - Dissolve, fade, iris in/out. Digital video effects with the enhanced ability to combine one or all of the styles.
- **Convolve** - User-definable filters. Create background textures based on foreground imagery.
- **Macros** - Users can create custom effects and save them as single button macros.
- **Masking** - Use any part of an image to become a multi-bit image protection mask for most events.
- **Color Reduce** - When the output is going to be a game machine or low-color resolution, this tool provides the smoothest reduction of color while maintaining the content of the original image.
- **Render Launching** - Composer has the feature of launching your installed renderer as an event in the compositing process; saving time and disk space.
- **Integrated morphing, warping** - Sophisticated tools for accurate morphing or warping between images or sequences, and effects.

User Interface

- **Keystone™ compliant** - The Silicon Graphics initiative for consistency and interoperability between applications.
- **Toolbar** - Floating palette of tools for use at anytime during the work flow.
- **Tear-off menus** - Eliminates the redundant use of pull-down menus.
- **Drag-and-drop tools** - Select the image, drop in the time-line, Composer does the rest.
- **Color chooser with HSV and RGB controls** - Select color based on numeric value, pixel selection, sliders, or a mixture of all.

Open Architecture

- **3rd Party Plug-ins** - UI can be accessed via plug-in architecture, providing the ability for 3rd party developers or programmer-savvy users to create custom effects and functions which become extensions of the over-all application.

Video Equipment (NTSC-PAL)

- Abekas digital disk recorders (A, A65, A66 (RS-232), DISKUS)
- Accom WSD digital disk recorder
- Chyron Centaur
- Sony Hi-8, Sony LVR (RS-232)
- Videomedia V-LAN, Lyon-Lamb MiniVAS
- Recorders capable of insert editing in 1-inch
- D1, D2, Betacam, S-VHS, U-Matic
- Video frame buffers from Chyron (Centaur), SGI (Cosmo, Galileo, IndyVideo, Sirius, Indigo2Video)

Supported Formats

- WAVEFRONT .rla, rlb, texture files, Alias, Alias.Z, Aurora, Avid OMF, EXPLORE
- (TDI), GIF, IFF/ILBM, JPEG, Kodak Cineon, PICT 2, Pixar
- PostScript, Quantel, SEGA, Silicon Graphics
- SGI Movie, Sony PlayStation, Softimage, Targa, TIFF, and Vista-Apple Photo mode, support for QuickTime Apple CinePak playback

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FLEXIBLE
POLYGONS
NURBS
BLOBBY OBJECTS
TRUEMAP
CONTROL
POV

MORPHING
DEFORMING
HIERARCHICAL
PHYSICS
COLLISIONS
WEATHER
SPARKS
EXPLOSIONS
PARTICLES
WELDING
SLUGS
INTERACTIVE
REVOLUTION
LIP

SHADERS
MULTI-PROCESSOR
UNLIMITED
COMPOSITE
EFFECTS
FILTERS
CORRECTION
BLEND
TEXT
64 BIT

NETWORKED
AUDIO
PAINT

ROTOSCOPE
AIRBRUSH

DYNAMICS
CURVES

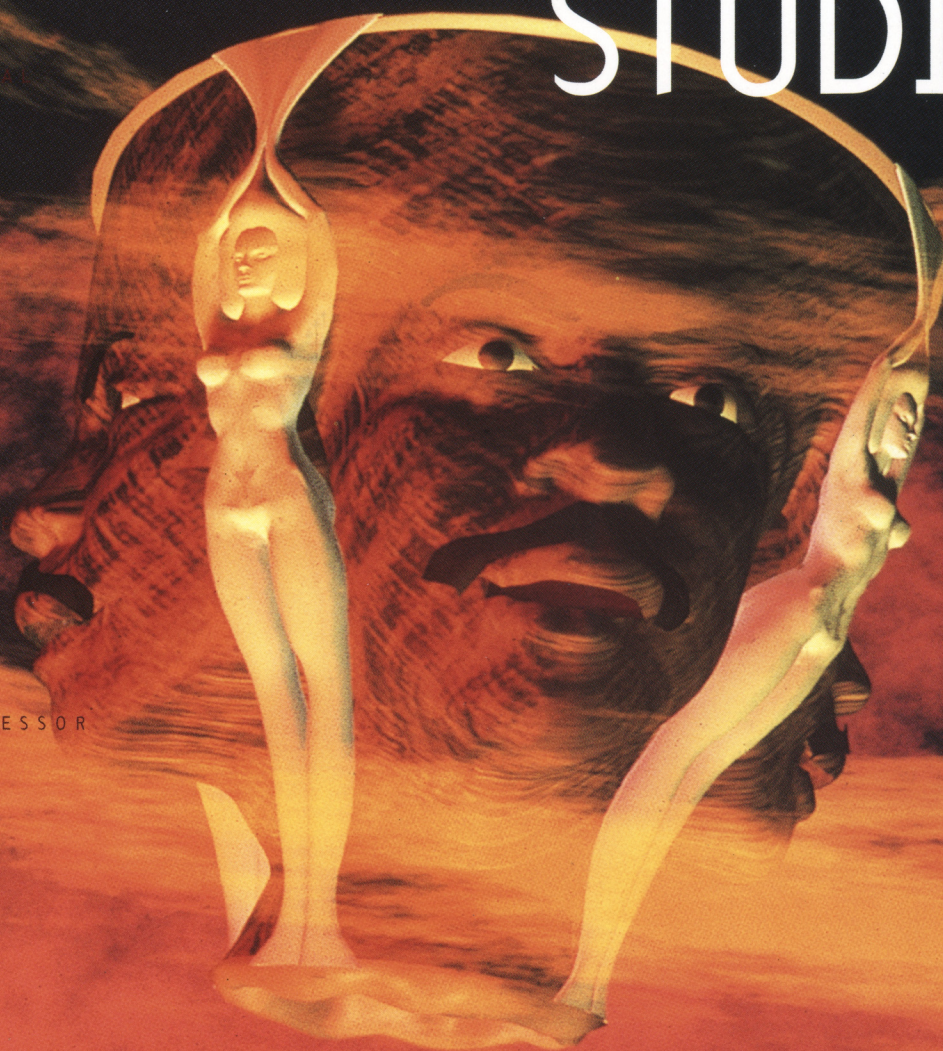
POINTS

LIVE-ACTION

PHOTOREALISIT

MEDIA STUDIO

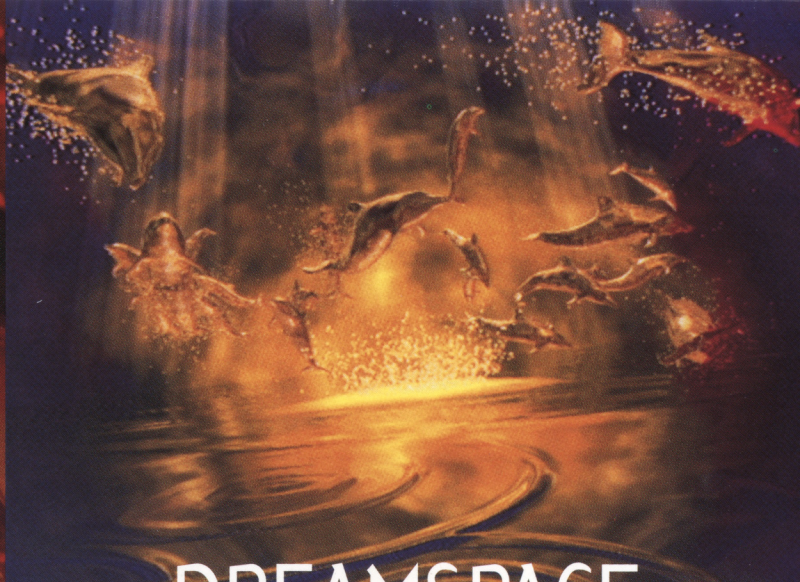
MEDIA STUDIO™



THE WORKS

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DREAMSPACE

THERE'S SOMETHING under the bed. I see the oil and scum of its skin, the mounds of flesh, fattened on a thousand victims, the awful herky-jerky dance of its movements. It is there. Let me show you.

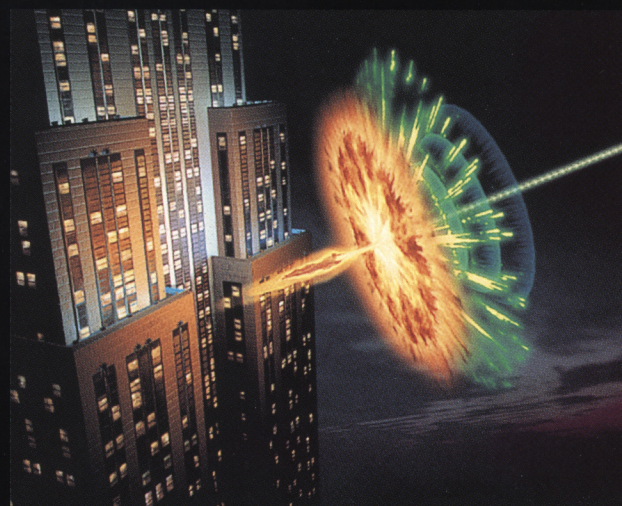
Film makers are not ordinary people. You have a vision. A special vision. And you need to show it to the world. Enter MediaStudio — a fully-equipped software package with every tool you can imagine, to help you liberate the vision that lives inside your mind. For everyone to see.

Close-up on its eyes. Slits. Make them deep and foreboding, like ancient marbles imbued with an evil spirit. They look at me. Through me. I have to remind myself that this is only a computer monitor. That I created this. The director stares, caught in the same hypnotic trance.

Within Explore Professional, start in 3Design™ and model. Really model. Advance to Anim™ and make your creations move like you've only dreamed they could move. Then modify your image — interactively — with MediaStudio's revolutionary rendering tool, IPR™.

Now change its skin texture. Mottled. Smooth. Velvet. The director nods his head. Velvet makes the rhythmic expansion and contraction of its abdomen all too real. Pixels, I tell myself. Just pixels.

MediaStudio includes tools for modeling, keyframe animation, rendering, special effects, painting, rotoscoping, touch-ups, and compositing. Plus an option for creating realistic character animation.



In the old world, sets were expensive. Actors had attitude. Monster suits made you sweat.

MediaStudio lets you leave the old world far behind. No other studio — real, digital or imagined — puts so much power at your command.



MODELING

Mix n' match polygons for complex shapes. NURBS for smooth surfaces. and Blobby modeling for organic objects. You get infinite undo/redo. and a fully-modifiable construction history. 3Design's TrueMap™ lets you interactively place textures on your model and uses a remarkable technique called conformal texture mapping to eliminate texture smearing.

ANIMATION

MediaStudio's spline-based keyframe animation module covers all traditional territory. And then some. Our hierarchical interface maxes out your interactive control over the motion of objects, light sources, and point-of-view — a virtual cam. Of course, we've got the full gamut of 3D morphing and deformation tools as well.



RENDERING

IPR stands for Interactive Photorealistic Rendering. Photorealistic means photorealistic, and interactive means interactive.

IPR lets you change and see the effects of your changes in color, lighting, material, refraction, reflection and shadowing characteristics. Instantly. Over any range of frames.

At the click of a mouse, you can apply colors, lights, atmospheres and textures, tune lens flares.

Or transubstantiate stone into glass into sand.

Forget test spheres. Only IPR lets you select a fully rendered object within a fully rendered scene and turn its attributes into a gang of sliders that let you control all of its characteristics. Create custom shaders with a graphical interface or use one of the thousands provided.

DYNAMICS

Dynamation™ lets you describe an environment and have the computer use real-world physics to create weather, complex collisions, dynamic 3D explosions or any physical effect your imagination can produce.

With Dynamation you can render rains of frogs, exploding oil tankers, or swarms of locust. Your digital 3D fire throws hotter sparks, your hurricanes

blow harder, and you can zoom as tight as you want on your smoke effects. It's all there.

SLUGS — a system of inertial force elements — lets you add wiggle to your walk and bounce to your stride. Create digital clothing with Dynamation's special cloth welding, tacking and motion tools.

Access the power of Dynamation with it's point-and-click interface, command language, or full-blown programming language.

PAINTING

VizPaint2D is the interactive production tool for painting, rotoscoping, and touch-up. Use it any time during the production process. Paint interactively. Simple-to-use tools allow you to create masks, touch-up scanned backgrounds or textures, and paint fluid animation over live action.

COMPOSITING

Composer™ lets you digitally composite unlimited layers of film, video, audio and visual effects. In 64-bit color. Output to QuickTime™, HDTV, IMAX, whatever resolution you need. Composer is network-based, so you can share resources with all your boxes. The DSO plug-in architecture lets you run a variety of third-party filters.

CHARACTER ANIMATION OPTION

MediaStudio's optional Kinemation™ module gives you the fine motor skills you need to produce superb character animation. Use our DigitalDoll™ interface to describe your characters' skeleton and define the range and consequences of each part's motion. Then, conquer life-like animation with a seamless blend of forward and inverse kinematics. Of course, Kinemation supports most electromagnetic and optical motion capture devices, plus the Monkey.

Your character's skin is smarter too. With SmartSkin™, you can teach the skin to behave according to skeletal position, and then link it to your character's skeletal movements. The same technology offers complete control over facial animation.

WITH THE
ABILITY TO
DIGITALLY
COMPOSITE
UNLIMITED
LAYERS
OF FILM,
VIDEO,
AUDIO
AND VISUAL
EFFECTS,
THE
POSSIBILITIES
ARE
ENDLESS.



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Modeling

- Construction hierarchy between object components
- Unlimited "undo" and "redo."
- Surface trimming, cutting, and topping.
- Boolean operations on polygons: union, intersection, difference
- Selective extrusion, explosion beveling, triangulation of polygons.
- Bitstream fonts.
- Blobby deformation
- Non-linear deformations, molding and sculpting tools.

Animation

- Linear, C-spline, and composite interpolation modes.
- 2D graphs for interactive control of keyframes and timing.
- Forward and inverse kinematics with constraints and skinning.
- Automatic deformation of an object along a curve (spline fitting).

Rendering

- Very large database rendering optimization.
- Powerful shading language.
- Support of C language for custom materials.
- User-defined ray-traced object groups.
- Soft and transparent ray-traced shadows.
- 2D projective mapping on NURBS surfaces and polygons.
- Motion blur and depth-of-field.
- Level of detail management.

Interactive Photorealistic Rendering (IPR)

- Interactive tuning of all material and lighting parameters.
- Instant image refresh, including ray-traced effects.
- Graphical creation of custom materials using SHADERMAKER™.
- Animation of any material parameter.
- Automatically dispatch your renderings over a network of computers.
- Handle extremely large databases (several million polygons) efficiently with IPR's sophisticated optimized memory management system.
- Simulate lens flare and other optical effects, and tune them interactively within your completed scene.
- Use volume rendering to simulate light effects through different atmospheres, explosions, smoke, and other dynamics-based effects.

Composer

Professional Production Techniques

- Fit (scale), fade, gamma.
- Layering- add, atop, in, mixer, out, over.
- Transitions - dissolve, fade, iris in/out,
- Convolve - user-definable filters.
- Glow - variable width, height, fall-off, color.
- Layering - add, atop, common, difference, displace, in, out, mixer, mixer mask, multiply, over, switchmatte, xor.
- Macro facility, custom effect extensibility.
- Masking - multi-bit image protection for most events.
- Reduce - color reduction to any size palette.
- Render Application Launch
- Integrated morphing, warping.

User Interface Items

- Keystone™ Subset Compliant
- Toolbar for quick access to frequently used functions.
- Tear-off menus.
- Drag-and-drop tools.
- Color chooser with HSV and RGB controls.

Open Architecture

3rd Party DSO plug-ins.

Video Equipment (NTSC-PAI)

- Abekas digital disk recorders (A, A65, A66 (RS-232), DISKUS, Accom WSD digital disk recorder, Chyron Centaur, Diaquest ImageNode, Sony Hi-8, Sony LVR (RS-232), Videomedia V-LAN, Lyon-Lamb MiniVAS.
- Recorders capable of insert editing in 1-inch, D1, D2, Betacam, S-VHS, U-Matic.
- Video frame buffers from Chyron (Centaur), SGI (Cosmo, Galileo, IndyVideo, Sirius, Indigo2Video).

Supported Formats

Wavefront .rla, .rlb, texture files, Alias, Aurora, Avid OMF, EXPLORE (TDI), GIF, IFF/ILBM, JPEG, Kodak Cineon, PICT 2, Pixar, PostScript, Quantel, QuickTime 1.0, SEGA, Silicon Graphics, SGI Movie, Sony PlayStation, Softimage, Targa, TIFF, and Vista.

Paint

- Alpha painting.
- Layer painting, foreground and background.
- Palettes- continuous tone, RGB, HSV, CMY.
- Sequence painting, automatic file read/next/previous, on-screen loop, and easy file saving.

Masks

Automatic creation - alpha, chrominance, luminance, freehand.

Effects

- Color correction - tone, red, green, blue, negative, invert.
- Cut freehand, geometric shapes.
- Sub-pixel zoom.

Canvases

- Foreground/background layers.
- Over, under, atop, erase, behind, fore, hue, saturation, value, and watercolor modes.
- Paint on multiple canvases.
- Resolution independent, video, film, HDTV, user-specified up to 8K by 8K.

Dynamation

Direct Manipulation Interface

Full Programming Language

Field Functionality

- Local or global forces.
- Animation of field parameters.
- Multiple fields per object.

Built-In Field Types

Aging, directional, friction, gravity, guide (motion along a path), Newtonian, radial, turbulence, vertex.

Built-In Particle and Vertex Attributes

Acceleration, age, ambient color, life span, emission time, emission velocity vector, event, field direction, HSV color, specular color, split time, surface normal, tail, texture coordinates, velocity, weight, or user-defined attributes.

Transformations

Linear, PreView non-linear, file number, parenting.

Integration

Has specific support for Silicon Graphics Extreme, VGX, and Reality Engine rendering capability, including: accumulation buffers, z-buffers, anti-aliasing, and blending. Can instance particles to geometry, interpolating geometry, or blobby objects.

OPTIONS

Kinemation

Animation

- True 3D inverse and forward kinematics.
- Arbitrary collision objects to assist character interaction with environments.
- Cut/copy/paste frame ranges to do time conversion, overlapping motion, squash and stretch, and follow through.

Motion Capture

- Real-time input from Ascension Flock of Birds™, Polhemus Ultra Trak™, and Digital Image Design's Monkey™.
- File support for optical systems from Acclaim, Motion Analysis, and Super Fluo.
- Open file formats and simple examples for quick hook up of other motion capture systems.

Digital Doll

- Seamless blending of true 3D inverse and forward kinematics.
- 3D bones of any volume.
- Multiple joint types: Hinge, universal, ball and socket.
- Action chains can be defined and re-wired on the fly.
- Multiple handles can be defined at the same joint location.

SmartSkin

- Built-in skin model to control crease and muscle behavior.
- Skin behavior is "keyframed" by joint angle and/or time.
- Fine level of control is achieved by moving individual Flexor points and by new overlapping Flexors.
- Multiple objects per skin enables geometry 3D "morphing" techniques.

IMAGE CREDITS

COVER: Dis Is Da Drum, Metrolight Studios
INSIDE SPREAD (top row, left to right): Black Hole Sun, Soundgarden. 3D Computer Animation, 601 FX • "Yesterday When I Was Mad", The Pet Shop Boys. 3D Computer Animation by 601FX • Designer/Director: Joel Hynek, First Light, Inc.; Animation: Kleiser-Walczak Construction Company ©1993 Columbia Pictures, Inc. • Species: Courtesy of MGM Pictures/Boss Film Studios. • (left page): Fantastic Four, Mr. Film • Animated by TRIX, ©New Wave Entertainment and Showscan Entertainment • (right page): Star Trek Generations, image provided courtesy of Paramount Pictures. Digital effects by Santa Barbara Studios. • Electric Image/Brewers.

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SURREALISM
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PHASERS
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INFERNOS
COMMUNICATORS
TORPEDOES
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SUNSETS



THE POWER
TO MAKE YOUR
HEAD SPIN



MOLD the sleek super-smooth contours of your objects. Blast them into space and bounce them back in an explosion of ray-traced lens flare, motion blur and photon torpedoes. Add dancing textures and glorious soft-glowing logos, and then animate the cameras. Save your creation to film, video, the Web — or a multitude of industry-standard file formats.

This is Animator V7. An integrated environment for 3D modeling, animation and rendering, that lets you harness the power of a Silicon Graphics RISC-based workstation like the Indy™.

Sophisticated imagery without complex commands. Advanced technology at an affordable price.

This is Animator V7.



A  **SiliconGraphics** Company

ANIMATOR

Molten Modeling.

Intuitive and interactive sculpting tools that allow you to mold and shape your model as your imagination flows. Use NURBS for super smooth models, and polygons for fast display on next-generation 3D video game platforms. With construction history, you alter a curve or a shape, and then the software re-applies everything you've done to all linked surfaces. Automatically.

Atomic Animation.

Juice your creations with Animator's high-octane animation tools. Animate almost anything - objects, lights, cameras, motion paths, surface characteristics or shading parameters. Preview animations and synchronize them with the soundtrack.

Radioactive Rendering.

Use Digital OptiF/X™ to set the world on fire; flames, light beams, embers, lava, photon torpedoes and ultra-vivid explosions. Control focal-length, f/stop, lens focus, field-of-view, and film format with Real-World Camera Lens™ to blend with actual camera footage. Raytrace high-quality imagery while harvesting CPU cycles from your network of Silicon Graphics workstations.

As Open as the Final Frontier.

With the OpenAlias™ API you have complete access to internal data structures for writing custom plug-ins and file converters. OpenRender™ gives you the power of programmable shaders, while the Scene Description Language offers script-level access to the renderer.

And we support loads of input formats like OBJ Geo, DXF, and IGES, and a huge range of peripheral devices and output formats including OBJ Geo, Inventor (for access to VRML), DXF, Apple QuickTime™, MoviePlayer, Avid OMF™, TIFF, RIB, etc.

Mission Control - The UI.

Animator's single, integrated environment lets you move from modeling to animation to rendering - and back again - as you continuously refine your imagery. It also lets you customize tool shelves, hotkeys, and unique marking menus that let you make a menu selection from anywhere on the screen with a flick of the wrist.

Modeling

Both NURBS-based and polygonal modeling.

- **Basic Modeling** - Generate and edit surfaces by: revolving, extruding, skinning, defining boundary curves and faces, trimming, filleting, and defining bevels.
- **QuickShade™** - Model and animate shaded objects in real-time.
- **Curve on Surface** - Draw and edit curves directly on a 3D surface.
- **Offset** - Create offset curves or surfaces.
- **Construction History** - "Remembers" how models have been constructed and automatically rebuilds surfaces to maintain user-specified relationships as the base curves are edited.
- **Polygonal Tools (Base)** - Create/import models; split/merge vertices; extract/combine polygons; flip/unify normals; add polygons.
- **Polygonal Converter** - Convert a NURBS object to a user-specified number of triangles or quads.
- **Stages** - Switch between different characters, "sets," or "lighting stages."
- **Animation Sweep** - Create objects from user-defined animated curves or surfaces.

Animation

Tools to animate objects, lights, cameras, surface characteristics, and shading parameters.

- **Basic Animation** - Define animations using keyframes, motion paths and CV's.
- **Action Editor** - Set and adjust actions using an interactive graphical display of parameter curves.
- **Cut, Copy & Paste** - Point and click editing of animations of hierarchical objects.
- **Time View** - Adjust timing relationships (key frames) using a graphical user interface.
- **Animation Preview** - Play back animations in wireframe or rendered flipbooks.
- **Sprite Previewer** - Play back backgrounds with one or more sprite animations to fine tune their interaction with each other and with the background.
- **Set Motion** - Set and adjust an object's or camera's orientation along a motion path.
- **Randomizer** - Randomly animate multiple objects such as bubbles or flocks of birds.
- **Image Planes** - Rotoscope over backgrounds by creating multiple planes that can be animated, zoomed, tracked, assigned depth and stenciled.

Rendering

Tools to create photorealistic images.

- **Digital OptiF/X** - Interactively create camera and lighting effects, such as lens flare, translucence, fog, glows, explosive effects, volume shadows and lights.
- **Real-World Camera Lens** - Cinematography interface for adjusting depth of field, f/stop, focal distance and film format. Multiple simultaneous cameras per scene, variable near/far clipping planes, and stereo viewing.

- **Lights** - Ambient, point, spot, directional, linear, area, volume.
- **Quantizer** - Automatically set up the optimum color maps for reduced color spaces.
- **QuickRender™** - Quickly render for rapid feedback, including shadows and volume spotlights.
- **Composite Renderer** - Special anti-aliasing routines to smoothly blend sprites into a scene.
- **MotionBlur** - Apply realistic blurring effects to individual objects or an entire scene.
- **Hidden Line Rendering** - Generate smooth outlines for cartoon-like renderings.
- **Distributed Render Control** - Manage rendering projects over a network through an intuitive, graphical interface.

Open Digital Studio

An open environment for easily integrating digital media solutions from multiple vendors and programming custom effects.

- **OpenAlias Plug-In Architecture** - Complete C and C++ access to live data including 3D models, animations, lights, cameras and textures.
- **OpenModel™** - Write your own programs to manipulate Alias models and animations.
- **OpenRender** - Write your own shaders, textures, and lights.
- **SDL™ Renderer** - Write custom scripts to control the renderer.
- **Alias 3DCD™** - A CD-ROM of 3D models, environments, textures, and animations.
- **Sound Sync** - Synchronize audio tracks with animation previews.
- **Input** - IGES, VDA/FS, VDA/IS, OBJ Geo, DXF, StyleGuide!, Inventor, PRO/E Render, STL.
- **Output** - Apple QuickTime, Avid OMF, TIFF, Pixar RenderMan® (RIB), DXF, OBJ Geo, Inventor, STL, SLC, SGI MoviePlayer.
- **Video Device Support** - Abekas, Chyron, SGI, Digital 4:2:2.

OPTIONS

PowerTracer™

Raytrace images faster using multiprocessor systems.

PowerCaster™

Raycast images faster using multiprocessor systems

StudioPaint 3D™

Paint and sketch directly on 3D surfaces with real-time brushes and pencils.

Composer™

Assemble video clips, animation sequences, and stills in layers; sequence them in time; and add special effects, audio, transitions, titles, and annotations.

Alias | wavefront

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Fax: 81.3.3446.9924

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Fax: 44.1494.449.289



MOOD LIGHTING
PLASMA
BEASTS
CHOREOGRAPHY
PYROTECHNICS
TORNADOES
HAIR
HELICOPTERS
LANDSCAPES
EXPLOSIONS
FLYING CARPETS
FLARES
RIPPLES
KUNG-FU
FACES
MISSILES
CITYSCAPES
SMOKE
LIZARDS
STARSHIPS
SKIN
HALLUCINATION
FLAMES
SHRIMP
SNOW
PUTTY
HEARTBEATS
GHOSTS
WATER
LASERS
PHASERS
F/STOP
DROIDS
TURBULENCE
INFERNOS
BUBBLES
PHASERS
TORPEDOES
SWEAT
TENTACLES
FOG

GAMES & INTERACTIVE MEDIA

IT'S ALL IN YOUR HEAD

Alias | **wavefront**

A  Silicon Graphics Company

BANG IT HARD



ERY MEDIEVAL. EXCEPT IT'S IN THE FUTURE. NOT ON EARTH. CASTLES. FORESTS. FOG. LOTS OF FOG. TWO SUNS. THREE MOONS. FOUR KNIGHTS. AND THEY'RE HUNTING.

ALIAS|WAVEFRONT OFFERS MORE THAN A POWERFUL SET OF GAME TOOLS. WE OFFER A WAY TO HARNESS THE IMAGINATION AND REACH INTO THE DEEPEST, DARKEST CREASES OF THE BRAIN.

A GAMER'S BRAIN.

THREE DOORS. BEHIND DOOR NUMBER ONE, THE PLAYER GETS BLOWN AWAY. BEHIND DOOR NUMBER TWO, THE PLAYER GETS BLOWN AWAY. BEHIND DOOR NUMBER THREE, THE ALIEN WAITS.

WITH THE MOST ADVANCED SUITE OF DIGITAL TOOLS FOR CREATING RICH CINEMATIC IMAGERY, GAMES AND INTERACTIVE MEDIA ARTISTS CAN CONCENTRATE ON DEVELOPING THEIR VISION. WITHOUT GETTING BOGGED DOWN IN THE TECHNOLOGY.

AND WITH FEATURES SPECIALLY DESIGNED FOR GAMES AND INTERACTIVE MEDIA — SUCH AS POLYGON REDUCTION, REAL-TIME MOTION CAPTURE, AND COLOR QUANTIZING — ALIAS POWERANIMATOR™ GIVES ARTISTS, GAMES DESIGNERS, AND DIRECTORS ALL THE TOOLS THEY NEED TO CREATE KILLER CONTENT THAT REACHES OUT AND GRABS PEOPLE.



GET THE DOLPHIN TO SWIM FASTER. TURBULENCE. STIR UP THE PLANTS, OCEAN FLOOR AND SMALLER FISH. MAKE THE LIGHT TRANSLUCENT. HERE'S A GOOD PLACE FOR THE CAVE. MAKE IT ENTICING. NOW THE WHIRLPOOL. MORE TURBULENCE. MORE TURBULENCE.

POWERANIMATOR'S UNIQUE INTEGRATED APPROACH STREAMLINES THE CREATIVE PROCESS FOR POWER USERS WHILE ACCELERATING THE LEARNING PROCESS FOR NEW USERS. AND WITH THE INDUSTRY'S BEST TOOLS FOR 3D MODELING, CHARACTER ANIMATION AND SPECIAL EFFECTS, YOU PRODUCE GAMES THAT ARE AS REALISTIC, SURREALISTIC, OR OTHER-WORLDFLY AS YOU WANT THEM TO BE.





MODEL MAGICALLY

PowerAnimator™ for games gives you the power to create anything your twisted mind desires – from intergalactic berserkers with ammonia for blood to muscle-bound giants wielding tree-trunks. Ugh.

Start with PowerAnimator's NURBS – sculpting tools like trim curves and freeform filleting give you frightening modeling power. And the enhanced built-in polygon converter lets you create several polygonal versions of your original model – black-hole dense for hero screens or light as a spider's web for maximum speed on the target game console.

Our polygon tools features an array of surface modeling tools that pick, model, create, extrude, scale, rotate, transform, translate and split polygons.

Our polyset reduction features an algorithm of such speed that most models are reduced in under two minutes – without compromising the original's shape or profile.

Clean up imported models by highlighting non-planar quads, flipping normals and removing redundant polygons.

POLYGON POWERUP

If you need more polygon prowess, just add 3Design™. Use a full array of polygon creation tools or use blobby objects to quickly build organic shapes. Or take your model directly from PowerAnimator and use 3Design's advanced polygonal manipulation to deform it using bend, twist, shear, squash and stretch, or use the sculpting tools to interactively mold your model as if it were clay.

Polygonal Booleans will unite your creative energies.

WRAPAROUND WALLPAPER

Combining Alias StudioPaint™ 3D with PowerAnimator lets you import your model and 3D paint right on it. Tumble your NURBS or polygon model and lay down strokes across multiple surfaces. Tumble, paint, tumble, paint. Let StudioPaint figure out the texture files that need to be generated.

StudioPaint's brushes and pencils work so fast they feel like the real thing. Only better.

THE REAL WORLD

With fully integrated particle systems, even the most alien of worlds looks and feels realistic.

Imbue life into solid and gaseous particles and make them part of the 3D-scene – not cheesy 2D elements composited in later.

Gravity, friction, turbulence, wind, collisions and anything else you add into the scene act.

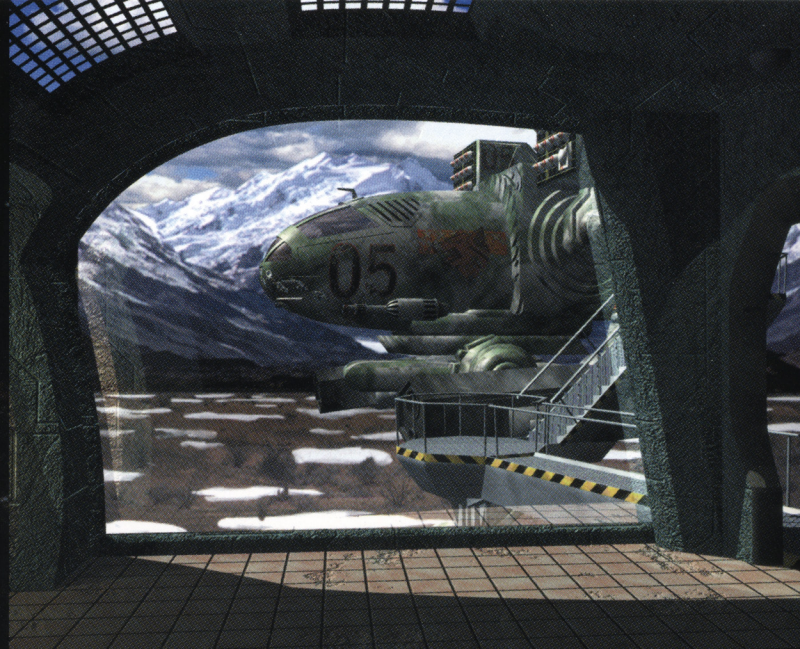
And react.

So your smoke can creep around, surround, envelope, slither – even cast shadows. And have shadows cast on it.

Form fire by assigning particles to a NURBS or polygonal model, and the dual suns burning in your background will blaze beautifully.

**POWERANIMATOR
LETS YOU CON-
CENTRATE ON
THE ART FORM OF
MAKING GAMES -
NOT THE
TECHNOLOGY**





RAISE HAIR

Alias CompuHair™ is the only integrated hair generator on this planet.

Or any other planet.

Use it to grow hair and fur that moves and interacts with your scene like real hair. Not plasticene. Or bald metal.

Choose desired color, transparency, length, curliness and thickness.

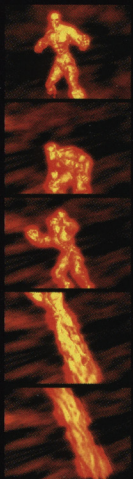
Then perm it. Or let it all hang out and blow in the breeze.

Even your cheerful undead types can have healthy, beautiful hair.

SUMMON FIRE

Use Digital OptiF/X™ to create sizzling explosions, light beams, embers, lava, photon torpedoes, motion blur — and fire.

Create ultra-vivid chromatic aberrations for crystals and jewels, light glows for neon lights, object glows for lava and molten steel, and prismatic lens flare for searchlights.



Light through clouds or smoke? Use our translucent shader.

Working in polygons? Assign a different shader to each one.

And our very own Reflect Only option generates lighting effects as texture maps that can be projected on walls for maximum real-time performance.

Our Color Quantizer matches your images to the color space of the target game console, and automatically sets the optimum color map.

For more interactive control of colors get Wavefront Composer™. Composer lets you see exactly what's happening to your image as

you make changes to the palette.

Composer's renowned compositing and suite of incredible video effects make your production complete.

So now you can blow up the whole damn set. Digitally. The horror. The horror.

YOUR
ARSENAL
IS
MASSIVE —
LENS
FLARE,
MOTION
BLUR, FOG,
GLOWS,
VOLUME
LIGHTS,
EMBERS,
LAVA,
PLASMA
BLASTERS

FLESH FOR FANTASY

Swelling muscles, skin stretched taut around joints, tendons, and even knuckles and webbing.

The advanced muscle and skin capabilities of PowerAnimator CharacterBuilder™ create bodies bursting with life.

Sync faces, not just lips.

Get precise sync by tumbling a model of your character's head and view multiple channels of information — frowning, eye bulging and lip movement — all at the same time.

Then hook up your actor to MotionSampler™3 and get real-time animated character display. With textures.

The interface makes character/actor calibration simple.

You want your character to jump twice as high?

No problem. Choose your filter.

What about procedural animation? MotionSampler3 has a dataflow interface to create motion in characters with almost any input you choose — a clock, a mouse, music — even mathematical expressions.

SEE HOW THEY RUN

Our Sprite Animation Previewer will make your spirit soar.

View the interaction of one or more sprite animations with animated backgrounds within a flip-book, and choreograph the appearance of any game sequence via precise, pixel-level control and fast feedback. Flip your character left to right, or top to bottom, at any point in the action.

Then use the composite renderer to anti-alias sprites and blend their outlines into the scene.

But the fun doesn't stop there.

Through our Game Export Tool™ (GET), you can output fully-textured models to a host of game platforms including next-generation 3D games like Nintendo Ultra 64™, Sega Saturn™, and Atari Jaguar™.

The GET interface also lets you preview your model, show pre-light source calculation, and display texture tiling.





USER INTERFACELIFT

We've taken a whole new look at the user interface. We started with PowerAnimator's integrated environment — a single, unified environment that lets you move from modeling to animation to rendering and back again in any order as you continuously refine your imagery. Which boosts productivity and creativity.

Then we added handy customizable toolshelves where you can keep all your favorite tools, reducing the number of mouse clicks required for power operations. Keep as many toolshelves as you want.

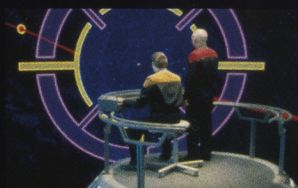
Of course, hot-keys are always available for keyboard-oriented types.

Plus, V7.0 includes marking menus. No-body else has this. Fresh.

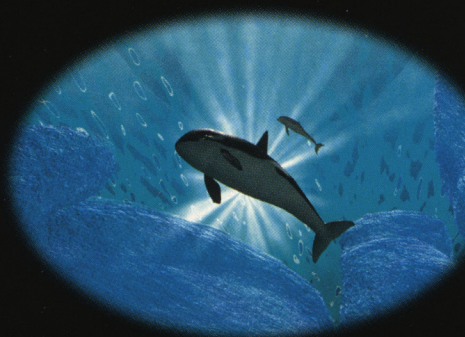
With marking menus, you don't have to keep going back to the menu bar or tool palette. You can make a menu selection from anywhere on the screen simply by holding down your mouse or stylus. Up pops a radial menu — fully customizable — with all the commands you need. Then a quick gesture left, right, up, or down selects the command you want.

Once you become familiar with marking menus, you don't even have to wait for the radial menu to pop up. Just zip zip.

Very cool. And very fast.



**INTEGRATED
PARTICLE
SYSTEMS
MEANS
NO MORE
CHEESY 2D
ELEMENTS
COMPOSITED
IN LATER.**



OPEN

OpenModel™ and OpenAlias™ give you complete access via standard APIs. You can write your own plug-ins or converters to manipulate your work and modify the data you want — polygons, animations, lights, cameras, shaders, textures, whatever — with file-level access to the internal data structure, live.

You can even create custom menus and dialogue boxes.

We support loads of input formats like OBJ, DXF, and IGES, and a whack of output formats including OBJ, Inventor (for access to VRML), IGES, DXF, QuickTime, TIFF, RIB, etc.

LOADED

Our 3DCD™ contains a battery of 3D models, environments, textures, and animations that give you exceptional power from the get-go.

Plug in our new fractal terrain generator, and landscapes — complete with mountains and trees — are built for you.

We also supply a graphical, interactive network renderer.

And our SoundSync capabilities sync digital audio tracks with animation playback sequences using standard audio file formats like AIFF and AIFC.

AND WORKING WITH YOU

We know that gamers' needs are not the same as those for film & video. That's why we've got the Alias|Wavefront games team — a dedicated group of code warriors who'll make sure you have what you need.

So you've got the tools to make games that rip.

IMAGE CREDITS

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GAMES & INTERACTIVE MEDIA

PowerAnimator V7

Base modeling, animation, and rendering.

- **Modeling** - both NURBS and polygonal based modeling.
- **Animation** - tools to animate objects, lights, cameras, surface characteristics, and shading parameters.
- **Rendering** - tools to create photorealistic images.
- **OpenAlias Plug-in Architecture** - Complete C and C++ access to live data including 3D models, animations, lights, cameras and textures.
- **Input/Output** - Extensive peripheral and file format support options.

Advanced Animation

Tools to create advanced character animation and special effects.

- **CharacterBuilder** - animatable muscle and skin deformation.
- **Shape Shifter** - multi-shape blending.
- **Particle Systems** - Produce solid and gaseous particles as well as extremely realistic looking hair. Particles interact with forces, geometry, and light.
- **Inverse Kinematics** - articulated 3D skeleton animation.
- **Motion Sampler3** - Real-time performance animation with hardware supported textures. Support for Ascension, Motion Analysis, Polhemus, and the Monkey™.

Power Modeling

Advanced modeling tools for maximum flexibility and control in creating complex freeform surfaces.

- **NURBS Booleans** - subtract, intersect and union Booleans.
- **Rebuild Surface** - interactive surface fitting.
- **Curve Networks** - multicurve surface creation.
- **Birail** - multicurve sweeping.
- **Curve & Surface Smoothing**
- **Polygon Reduction** - polygon count reduction.

Game Export Tool (GET)

Converts files from PowerAnimator, Explore or Visualizer to game specific file formats.

- **Formats Supported** - Nintendo Ultra64™, SEGA Saturn™, Atari Jaguar™, 3DO™, Inventor/VRML.

3Design

The advanced polygon modeler.

- **Blobby Objects** - organic object creation using implicit surfaces.
- **Polygonal Booleans** - subtract, intersect and union Booleans.
- **Deformation** - tools include bend, twist, shear, squash, and stretch.
- **Polygon Reduction** - polygon count reduction.
- **Mold and sculpt** - interactive surface deformation.
- **TrueMap** - conformal texture mapping.

Composer

Color quantizing and video compositing.

- **Color Quantizer** - interactive color palette reduction.
- **Layering and Keying** - professional video editing capabilities.
- **Transitions** - including dissolve, fade, iris in/out, etc.
- **Input/Output** - extensive peripheral and file format support options.
- **Audio Support** - multi-track recording, editing, and syncing.

StudioPaint 3D

3D paint system for texture generation.

- **2D Paint** - realtime brushes and layers for concept creation.
- **NURBS and Polygon 3D Painting** - interactive texture creation.
- **Multi-surface multi-texture painting** - single or multi-surface painting.
- **Texture Generation** - automatic conversion to PowerAnimator textures.
- **Shelf and Marking menu UI** - next generation stylus-ready interface.

Alias|Wavefront Customers in Games and Interactive Media include:

Acclaim Entertainment Inc.
Activision, Inc.
Angel Studios
ASCII Corp.
Boss Film Studios
Bullfrog Productions Ltd.
Bruvel Visionscapes
Capcom USA, Inc.
Crystal Dynamics
Curious Pictures
CyberFlix, Inc.
Data Design Interactive
daVinci Time & Space
Delphine Software
Digital Image Design
Domark Software Ltd.
Dynamix, Inc.,
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DMA Design
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Electric Dreams, Inc.
Empire Interactive, Entertainment International (UK) Ltd.
Enix Corporation
GTE Entertainment
GameTek, Inc.
Hudson Soft Co., Ltd.
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Ocean Software Ltd.
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Presto Studios
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Rare Ltd.
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A Division of Sega of America Inc.
Sega Enterprises
Sega Europe
Seta USA
Sierra On-Line
Shiny Entertainment
Softgold Computerspiele
Software Creations (Holdings) Ltd.
Sony Computer Entertainment of America
Spectrum Holobyte, Inc.
Square Co., Ltd.
Square Soft, Inc.
Strategic Simulations, Inc.
A Mindscape Company
Studio Arts Multimedia, Inc.
Studio Dews (Division) Banpresto Co., Ltd.
The 3DO Company
Time Warner Interactive
(formerly Atari Games)
Titus
THQ, Inc.
Viewpoint Datalabs International, Inc.
Virgin Interactive Entertainment, Inc.
Visual Concepts Entertainment
Williams/Bally Midway
Williams Entertainment, Inc.

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DETAIL
GILLS
SCALES
FROST
LICHEN
RUST
DIRT

DEPTH
TAPESTRY

TARNISH
SKIN

COLORS
WARTS

FROWNS
LEATHER

HIDE
MOLD

WRINKLES
SLIME

GRIT
HORNS

BELLY BUTTONS
TEXTURES

DIMPLES
MOOD

SCARS
VEINS

VELVET
CREASES

HALOS
PIMPLES

BLUSHES

PERSPIRATION

RICHNESS

MUMPS

JOWLS

CLEFTS

POTHOLES

RASHES

WOUNDS

FRECKLES

STUDIO PAINT™ 3D

JAZZ IT UP

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A  Silicon Graphics Company



TIME TO JAM

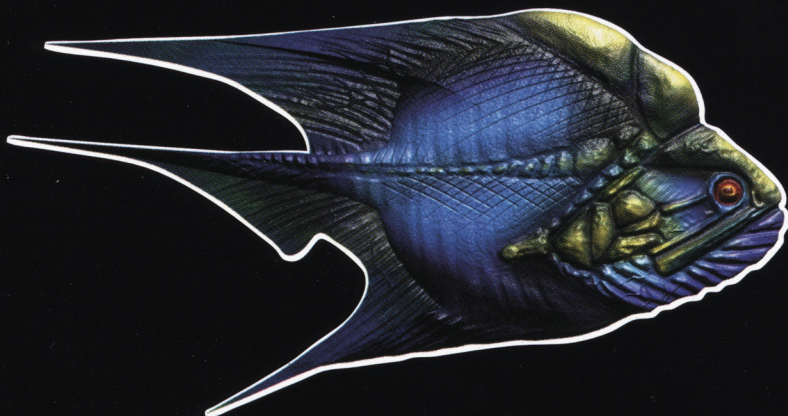
IMPORT the model. Cool. A jazz player. Rotate it. Absorb it. Let's give this guy some life. We're going to need lots of textures for this old jazz man. First his face...

Interactive, intuitive and downright easy to use. With enough power to give a model of any complexity or sophistication incredible detail. Establish the mood and explore an infinite range of colors, textures, techniques. You give richness, realism, life. And all in 3D.

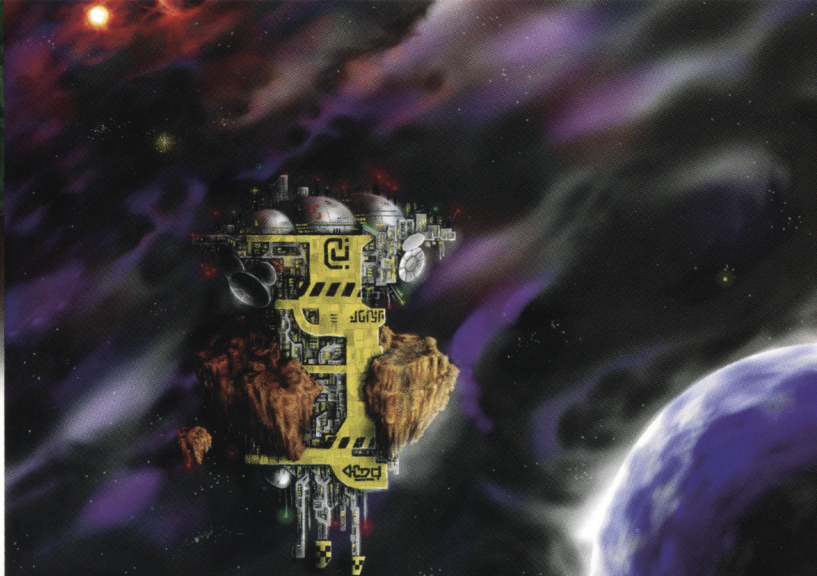
He needs some history. A sense of place. Of being. First displace the cheeks, then the eyes. Dab in some fine wrinkles around his mouth. And his eyes. Bright eyes. A wealth of living. Brush in rich colour. Warmth to his lips. Add some shadows. Yes.

StudioPaint 3D — the ultimate 3D painting environment for the artist who wants to create spectacular visual imagery, with all the ease and familiarity of working in 2D.

His trumpet. Silver. A nice, smooth texture. That's it. Now for the stage. Rich red velvet. Some smoky air. Brush in more shadows. Now render it all down. Man, does he ever look real.



StudioPaint 3D gives you next-generation painting tools in a performance-oriented package. Import, paint, and export your model seamlessly — whether a million-polygon dinosaur or a 123-polygon elf. Develop your innovative and creative imagery more easily, more accurately, more realistically, in less time.



FREE-FORM EXPRESSION.

When it comes to painting models, nothing compares to StudioPaint 3D. Import a model and start painting. It's that simple.

Apply textures like color, bump, displacement, specular and reflectance, then change view, transform the object, or select surfaces, and texture maps are automatically created. No other software can give you such realistic results.

StudioPaint 3D comes equipped with a customizable tool shelf: its tool palettes, user-definable brushes and geometry control tools are designed to give you complete control.

You can paint multiple textures on multiples surfaces — without having to unwrap, cut seams or worry about painting across blends. And you can handle models with thousands of polygons, dozens of surfaces and numerous seams.

Plus 3D projective paint allows you to scan and capture images, apply them to your 3D model, and paint over multiple surfaces seamlessly. And, as always, you've got StudioPaint 3D's full arsenal of 2D texture editing tools at your fingertips.

FINELY INTEGRATED.

Integration is a piece of cake with StudioPaint 3D. It automatically creates and assigns textures and shaders for PowerAnimator, Animator, Explore and Advanced Visualizer. And, you can import and export images and geometry directly from the clipboard between StudioPaint 3D and both PowerAnimator and Animator.

Plus, you get full 2D sketching, image manipulation and 3D paint functionality, all in one application.

QUICK & RESPONSIVE

2D sketching in StudioPaint 3D is as quick and easy as ever. Using responsive pens, markers, and airbrushes that look and feel just like the traditional tools you've always used, your workflow now mimics how you think. Create a simple model, or reuse an old one. Import it, displace it, paint it, then render it. It makes sense. StudioPaint 3D also allows you to work from scanned images to import textures, add genuine faces and drop in realistic backgrounds.

THE NEXT-GENERATION U.I.

With StudioPaint 3D, you won't suffer through an obtrusive user-interface. Instead, you'll enjoy a powerful, intuitive interface that comes closer than ever to emulating the natural human creative process — an interface that won't come between you and your work, that won't gobble up real estate on your monitor.

To boost your creativity and productivity, StudioPaint 3D features two-handed input with a Wacom stylus and a puck that lets you select the tools you want in a fluid process.

Dual window display lets you manipulate unwrapped 2D textures while evaluating the results in a parallel 3D window. And transparent menus keep tools at hand while freeing up screen real estate.

Handy customizable tool shelves allow you to reduce the number of mouse clicks required for power operations, and as always, hot-keys are available for keyboard-oriented types.

Plus, StudioPaint 3D's marking menus free you from the tedium and distraction of pull-down menus. With a quick flick of the wrist, you can invoke menu commands.



IMAGE CREDITS COVER: C.Tappan, A. Graham
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3D STUDIO PAINT 3D

Alias | wavefront

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Smarter

- **Integrated solution** with robust 3D painting, 2D sketching and image manipulation tools.
- **Multiple Textures** on multiple surfaces. No need to unwrap textures, cut seams or worry about painting across blended surfaces.
- **Performance Oriented.** Work with models that have thousands of polygons, dozens of surfaces and numerous seams.
- **Displacement Mapping** Batch or interactive modes. Users can paint a greyscale displacement map on the surface and work with immediate feedback on the painted model (interactive mode) or, for complex projects, work in a dedicated displacement mode (batch) that promotes the fast creation of extensive displacement maps.
- **Scanned images** can be applied to a 3D model and edited with brushes directly on the model or on an extracted surface.
- **Use Extract textures** to select textures from your model, unwrap them, paint on them and see them interactively displayed in near real time on the model.
- **Texture Map Optimization**
With this addition to the TextureStack Editor, users can now define, and thus optimize, texture maps to match surfaces and optimize memory.
- **Lighting Controls** Multi-positional lighting controls simulate rendered lighting. Saves on test rendering time as users seek the ideal lighting
- **Automatically** creates and assigns textures and shaders for Animator, PowerAnimator, Explore and Advanced Visualizer.

Better

- **Full complement** of 2D paint tools – pens, pencils, brushes – has the range and depth to make your stuff cooler.
- **Customizable brushes** including Arbitrary and Smear provide for special painterly effects such as scales and frost.
- **Layer** your work and combine as many independent layers as you need to make your visions real.
- **Mask** layer lets you selectively apply paint, digital effects or transformations.
- **Visibility** brush hides and shows any part of a layer.
- **Spline** brush is totally editable and gives you precise, tight spline brush strokes.
- **Texture**, clone, brushes and effects make touch-ups and texture creation a snap.
- **Edit** brush profiles and how a brush is applied to the canvas – brushes don't just look real, they feel real.

Easier

- **Pressure sensitive** stylus gives high quality, natural-looking strokes.
- **Max out** your productivity by smoothly copying and pasting between Alias/Wavefront 3D products.
- **Import** and export geometry formats such as Alias wirefiles, Silicon Graphics Inventor™, IGES and Wavefront .OBJ, and image formats such as TIFF, Alias PIX, Silicon Graphics FIT and RGBA, and Photo CD.

Faster

- **User Interface** saves real estate, mimics your workflow and speeds up the creative process with new features such as transparent menus, dual window display, two-handed input and marking menus.
- **Hardware Brushes** give performance optimized for Silicon Graphics systems with RealityEngine™ and Maximum IMPACT™ graphics. (optional)
- **Configure** StudioPaint 3D to suit your needs. Set window layouts and tool positions by dragging and dropping.
- **Quickly** access frequently used tools, colors and images from our unique tool shelf.
- **Zoom Tool** Move in and out. Get the big picture, then go for the details.
- **Pan Tool** The new Smart Image technology makes panning across an image (even 200 MB) a breeze.
- **Undo** and redo whole sequences of paint strokes, image processing operations and transformations.

KLEISER-WALCZAK TAPS ALIAS | WAVEFRONT SOFTWARE FOR ACTION-PACKED JUDGE DREDD COMPUTER ANIMATION

CUSTOMER

Kleiser-Walczak Construction Co.

APPLICATION

Judge Dredd

SOFTWARE

Composer™, Advanced Visualizer™,
Kinimation™, PowerAnimator™,
Dynamation™, IPR™



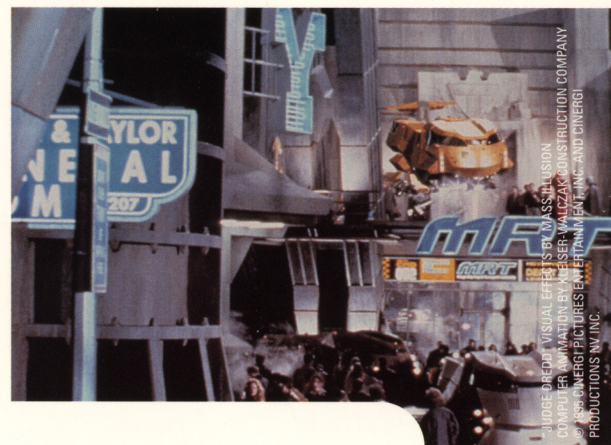
"JUDGE DREDD" VISUAL EFFECTS BY MASS ILLUSION
COMPUTER ANIMATION BY KLEISER-WALCZAK CONSTRUCTION COMPANY
© 1995 CINERGI PICTURES ENTERTAINMENT, INC. AND CINERGI PRODUCTIONS NV INC.

This scene from the aerial chase sequence features 2 CG motion captured 'Judge Hunters' riding CG Law Master bikes. The CG smoke was created with Dynamation.

"The software used to create the computer graphic imagery had to be the best out there. The use of Alias | Wavefront software by some of the most talented animators in the business helped bring the film to life."

— Joel Hynek,
visual effects supervisor for Mass.Illusion.

For the action thriller *Judge Dredd*, Kleiser-Walczak Construction Company leveraged Alias | Wavefront's™ acclaimed software to create compelling computer-generated imagery that blends seamlessly with the fast-paced live action. Based on the British comic book, this Hollywood Pictures film stars Sylvester Stallone as a futuristic lawman (Judge Dredd) with the power to pass instant judgment on the citizens of a futuristic mega city. Framed for murder by his evil clone brother, the entire planet is put at risk and can only be saved by Dredd. The plot is closely tied to the film's explosive visual effects and computer animation which were spearheaded by Mass.Illusion.



"JUDGE DREDD" VISUAL EFFECTS BY MASS ILLUSION
COMPUTER ANIMATION BY KLEISER-WALCZAK CONSTRUCTION COMPANY
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Digital flying craft, such as the Mega City Taxi in this shot, were modeled with PowerAnimator.

"We had ambitious goals for the visual effects in the film," says Joel Hynek, visual effects supervisor for Mass.Illusion. "We were charged with synthesizing a new world, set in the future, that would become the backdrop to a number of compelling action sequences. Every detail was critical, and the live action and visual effects had to be seamless, so the software used to create the computer graphic imagery had to be the best out there. The use of Alias | Wavefront software by some of the most talented animators in the business helped bring the film to life."

Alias | **wavefront**

A Silicon Graphics Company

Continued...

continued from front

Kleiser-Walczak created computer animation for the thrilling motorcycle chase scene which included an eclectic group of synthetic characters, flying vehicles, and a new-age holographic billboard. For the sequence, Mass.Illusion and Kleiser-Walczak were challenged with creating "the most amazing chase scene ever filmed," says Diane Pearlman, visual effects producer for Mass.Illusion. The end result features Stallone and Rob Schneider being chased through the city streets on flying motorcycles by the three villains in a gripping, suspense-packed ride.

Much of the sequence was previsualized using Alias|Wavefront Composer™, 2D visual effects and compositing software, in conjunction with Alias|Wavefront's Advanced Visualizer™ animation system. "The challenge was to precisely match the computer generated effects with the live action," says Jeff Kleiser, president of Kleiser-Walczak Construction Company. "After encoding simple motorcycles and human forms, we imported the Mass.Illusion geometry databases and planned the sequence in video using Composer. Without the precise previsualization and planning that we did up front, we never could have pulled the scene off."

After the previsualization was complete, Kleiser-Walczak exported the camera motion control data used to drive the camera through the miniature physical set of Mega City One at Mass.Illusion. The camera moves were creatively fine tuned by the Mass.Illusion motion control team to develop the most exciting effects. Then the updated move data was returned to Kleiser-Walczak to apply to the computer animated characters on the bikes. Again using Advanced Visualizer, Kleiser-Walczak was able to move the digital characters in 3D space in relation to the CAD data of Mega City One provided by Mass.Illusion.

A critical challenge for Kleiser-Walczak was to generate realistic movement of the digital actors on the computer models as they flew through the city. Ascension Technologies' Flock of Birds was used to capture the body motion of Diana Walczak, who posed for Stallone's motion on a wooden replica of the full-size live action aerial motorcycle, which was rocked to duplicate the flying movements. The resulting data was fed into Alias|Wavefront's Kinemation™, an advanced 3D character animation

"PowerAnimator delivered the freedom to unleash our creativity in the development of a number of mind-blowing 3D elements."

— Jeff Williams, head animator, Kleiser-Walczak Construction Company



Rendered with IPR, this CG shuttle with CG lights enters a Mega City docking bay.

environment, and combined with the Cyberscanned heads of the live actors to create the digital stunt doubles.

Working with a masterful team of computer graphics animators and ground breaking software from Alias|Wavefront, a variety of photorealistic flying craft were created to swoop through the Mega City sets. "The lofting and sweeping tools that PowerAnimator™ provides were essential," says Jeff Williams, head animator, who used the software to build the digital aerial motorcycle and Mega City taxi. "PowerAnimator delivered the freedom to unleash our creativity in the development of a number of mind-blowing 3D elements."

Digital extras also populated the city to add life to the models, and smoke and explosive effects were created with Alias|Wavefront Dynamation™ software. Kleiser-Walczak rendered the scenes with Alias|Wavefront's Interactive Photorealistic Rendering (IPR™) software. Hynek says, "IPR was critical to tweak the lighting, textures, and objects in real-time over the scanned backplates." The final result is a stunning "tour de force" of seamless cuts from live action to computer animation.

The CG Taxi in this shot illustrates the lens flare effects from the vehicle's headlights created with IPR.



CUSTOMER

Kleiser-Walczak Construction Co.

APPLICATION

Judge Dredd

SOFTWARE

Composer™, Advanced Visualizer™, Kinemation™, PowerAnimator™, Dynamation™, IPR™

Alias|wavefront
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KRONOS EXPANDS THE REALM OF ELECTRONIC GAMES WITH HIGH-END 3D VISUALS AND CINEMATIC EFFECTS

CUSTOMER

Kronos Digital Entertainment Inc.

APPLICATION

Criticom

SOFTWARE

PowerAnimator™

CRITICOM™



All modeling, animation, and rendering for Criticom was fast and flawlessly executed with PowerAnimator during Kronos' short five month development cycle.

KRONOS DIGITAL ENTERTAINMENT INC.

"We generate everything in the highest quality possible and we always want to be on the leading edge of technology. That's why we selected Silicon Graphics workstations and PowerAnimator for our game development platform from day one. Low-end PC products simply cannot touch the features, speed, or quality of the Alias | Wavefront system."

— Stan Liu, president, Kronos Digital Entertainment Inc.

Kronos Digital Entertainment Inc. is an interactive title developer on the cutting edge of electronic game design. The company's title releases are characterized by high-quality game play and sensational cinematics. With the release of Criticom, Kronos has leapt beyond such popular titles as Toshinden and Tekken by creating a truly three dimensional game in which the players have greater control over the action. To create such industry leading titles, Kronos relies on PowerAnimator™ software from Alias | Wavefront™.

Quality is the key to success at Kronos. Stan Liu, president and CEO says, "For us, it has always been a matter of quality. We generate everything in the highest quality possible and we always want to be on the leading edge of technology. That's why we selected Silicon Graphics workstations and PowerAnimator for our game development platform from day one. Our charter at Kronos is to bring world-class, Industrial Light & Magic quality cinematics to the interactive market. The only way to accomplish this is by using the same high-end professional products used in the movie industry. Low-end PC products simply cannot touch the features, speed, or quality of the Alias | Wavefront system."

A significant accomplishment for Kronos in the development of Criticom was that the entire game was created in only five months — a process which normally takes 12-16 months from initial concept to the



Rich artistic detail is evident in each of the Criticom characters.

KRONOS DIGITAL ENTERTAINMENT INC.

Alias | **wavefront**

A Silicon Graphics Company

Continued...

"With PowerAnimator, the short development time was not a problem at all. All of the modeling, animation, and rendering done with the system was fast and flawless."

continued from front

final master CD. In spite of the compressed timeline, Kronos was able to deliver an innovative new title in a very competitive marketplace. "With PowerAnimator, the short development time was not a problem at all," say Liu. "All of the modeling, animation, and rendering done with the system was fast and flawless."

Criticom is a real-time 3D polygonal fighting game for initial release on the Sony Playstation. It utilizes Sony's Gouraud shaded fully textured shading module and plays at 30 frames per second. The game contains three difficulty levels, and each time a character advances to a new level it acquires more advanced moves and techniques. The next generation of the game will even allow completely customizable characters as a player's skills grow with each win.

For Criticom, Kronos wanted to surpass the hugely popular fighting games currently on the market with a title that provided visually stunning images and a higher level of game play. "Kronos is known for our graphics style and high-end 3D visuals," says Liu. "PowerAnimator lets us create very detailed characters, backgrounds, and cinematic effects to enhance the visual excitement as well as the storytelling aspect of the game."

Working on Silicon Graphics Indy™ and Indigo™ Extreme™ workstations, the Criticom development staff included three programmers and 10 different artists working on three separate art teams. The visual development team designed all of the characters, storyboards, and moves on paper. The polygonal modeling team animated all of the moves that went into the game, and the cinematics team did all of the animation and storytelling part of the game.

Unlike most other games on the market, Criticom envelopes the players in a totally 3D arena. Characters can travel in and out of the screen, requiring greater skill on the part of the players who must align the characters correctly before going in for an attack. "With Criticom we give the

— Stan Liu, president, Kronos Digital Entertainment Inc.



Criticom provides game players with a visually stunning array of character choices in a true 3D environment.

player the freeform of movement in a 3D world," comments Liu. "PowerAnimator's 3D modeling and animation tools were essential for creating a game like this. The modeler is definitely the best out there, and the polygonal tools are great."

A unique feature of the game is that players can link an unlimited number of combo moves, one after another, which makes the moves extremely powerful and diverse. To create these animations, Kronos utilized PowerAnimator's inverse kinematics (IK). "The speed and flexibility of the character animation was crucial to the production," says Liu. "We use IK a lot, and PowerAnimator's skeletons and constraints made it easy to develop the complex character moves that make Criticom so much fun to play." Hardcore gamers will especially appreciate the powerful new combos. And, since the game is played in a 3D space, a lot more strategy is involved.

For their next game, Meat Puppet, currently in production, Kronos is using Ascension Technology's Flock-of-Birds motion capture system in combination with PowerAnimator's MotionSampler 3 interface for capturing performance animation. This dark action adventure game is being developed for the Sony Playstation and PC CD-ROM. Due out at Christmas of 1996, it promises to be another quality game from the innovative team at Kronos Digital Entertainment Inc. Stan Liu is also excited about the future technology coming from Alias|Wavefront. He comments, "We've had a glimpse of the wild new tools that will result from the merger and we can't wait to get our hands on them!"

— Stan Liu, president, Kronos Digital Entertainment Inc.

"PowerAnimator's 3D modeling and animation tools were essential for creating a game like this. The modeler is definitely the best out there, & the polygonal tools are great."

CUSTOMER

Kronos Digital Entertainment Inc.

APPLICATION

Criticom

SOFTWARE

PowerAnimator™

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THE END SHOWCASES ADVANCED COMPUTER ANIMATION IN AN ENTERTAINING LOOK AT THE WORLD OF COMPUTER GRAPHICS

CUSTOMER

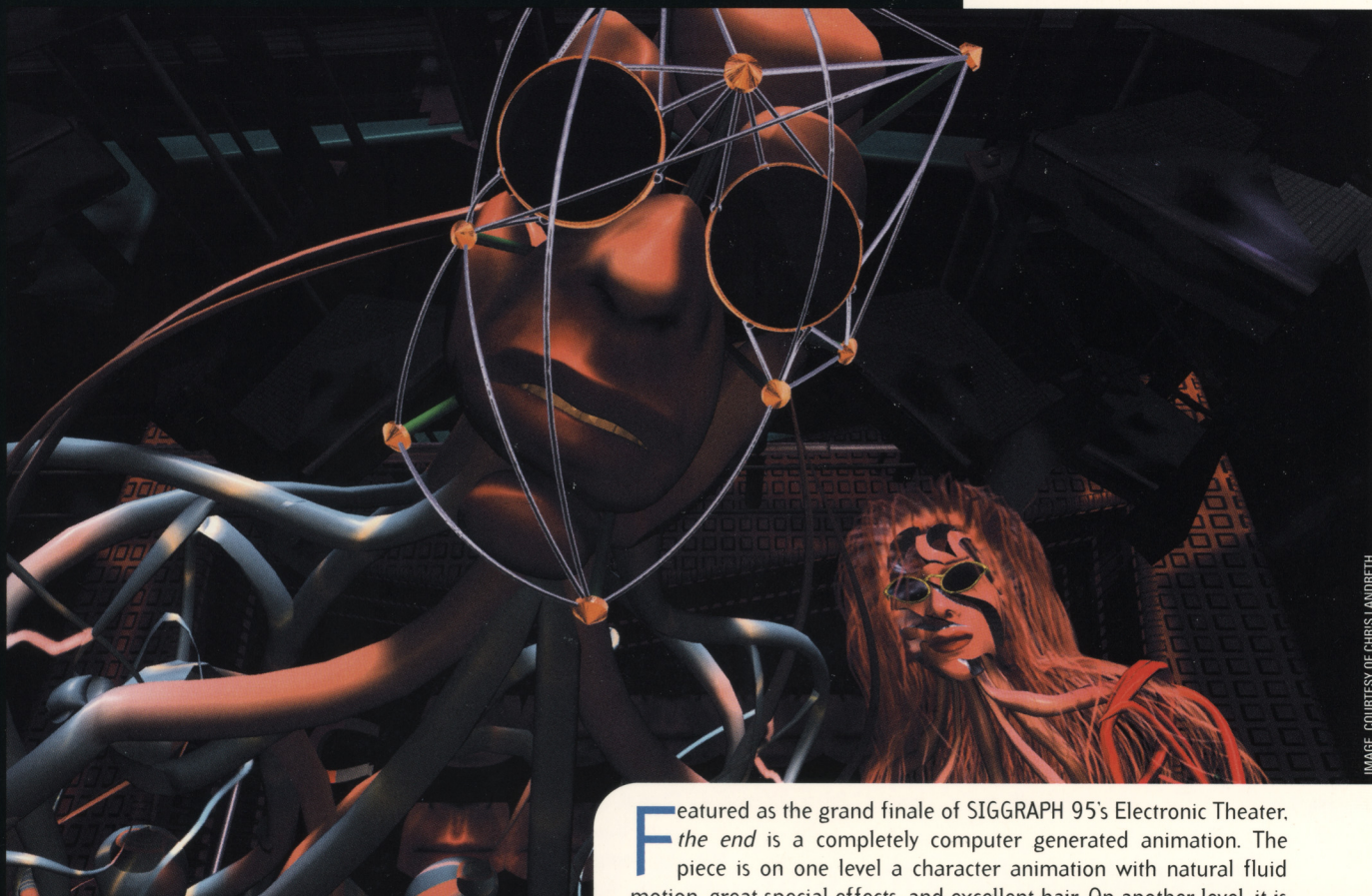
Independent Artist Chris Landreth

APPLICATION

the end

SOFTWARE

PowerAnimator™



Chris Landreth utilized PowerAnimator's powerful character modeling and animation tools to create expressive personalities for the characters in *the end*.

IMAGE COURTESY OF CHRIS LANDRETH

"PowerAnimator gave me all the power and freedom I needed to be fully creative and delivered it with an intuitive user interface that complemented my artistic workflow. It's a very cool product!"

— Chris Landreth

Featured as the grand finale of SIGGRAPH 95's Electronic Theater, *the end* is a completely computer generated animation. The piece is on one level a character animation with natural fluid motion, great special effects, and excellent hair. On another level, it is intended to be a satire on those profound, ultra-serious presentations in computer art and animation. Specifically, *the end* plays on a number of inside jokes familiar to anyone who's attended a recent SIGGRAPH conference on computer graphics. Included are many 'serious' visual and sonic metaphors that are laid on thick and heavy. In short, *the end* provides a lighthearted look at the world of CGI using some of the most advanced tools of the trade to deliver its message.

"Because the story has so many gratuitous visual metaphors, we had the opportunity to put in lots of equally gratuitous animation effects," says Animator Chris Landreth. "Fortunately, with PowerAnimator, we had a powerful software package that easily met the challenge and provided the technology to showcase some sophisticated effects now possible with computer graphics."

One goal of the production was to create realistic character animation. "To pull off this animation, the characters needed to have believable, expressive personalities," says Landreth. "They had to be intelligent and articulate, which required a lot of very subtle facial performances. With PowerAnimator's ShapeShifter™ and Sound Sync, this turned out



PowerAnimator's CompuHair™ gave the characters natural flowing hair.

IMAGE COURTESY OF CHRIS LANDRETH

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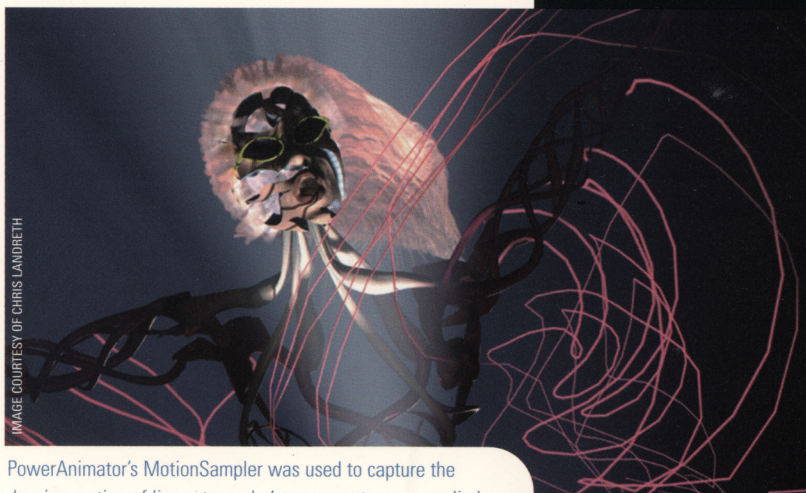
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to be surprisingly simple to compose." For the facial animation, a variety of facial poses were developed for each character. In each pose, different muscles were flexed to create accurate representations of the phonemes used in natural speech. With ShapeShifter, Landreth blended these poses to create the facial animation, and then, using Sound Sync, the poses were synced to the actor's voicetrack for a lifelike final result.

In addition to the character's speech, *the end* is supported throughout by some innovative audio tracks and a soundtrack composed and computed by Robin Bargar of the National Center for Supercomputing Applications (NCSA). Some experimental soundtracks and effects were also used, including sound morphing, procedural sound composition, and interactive, environmental sound layering using a prototype sound server developed by NCSA's Audio Development Group.

Another significant accomplishment for Landreth was to create natural looking hair for his characters — something that has traditionally been very difficult to accomplish with computer graphics. For this project, Landreth took advantage of Alias|Wavefront's CompuHair™ to develop nine different hair styles that appear on the characters. These range from ultra-realistic hair to absurd, cartoony, bubbly hair pieces. "The interface for creating hair allowed an incredible range of experimentation and spontaneity in developing these styles," says Landreth. "PowerAnimator is the only commercially available product that can create natural looking hair — that made all the difference for this animation, since it gave the characters this fantastic, lifelike flowing hair."

To animate the character's bodies, Landreth used both motion captured character motion and keyframed motion. The character motion was choreographed with two Minneapolis dancers, Wynn Fricke and Bob Zehrer, using Windlight Studio's motion capture stage and PowerAnimator's MotionSampler™ interface for real-time performance animation. "MotionSampler provided us with a simple interface for matching the performance of the dancers to the characters in the animation," says Landreth. "The movements of the



PowerAnimator's MotionSampler was used to capture the dancing motion of live actors whose movements were applied to the digital characters.

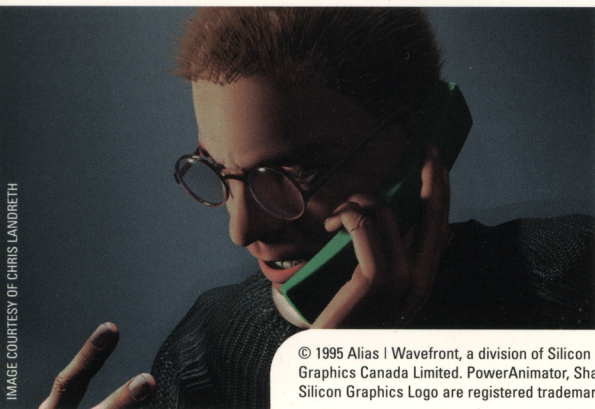
characters in the animation are indeed unmistakably 'Wynn-like' & 'Bob-like.'"

Among other special effects, there is a totally frivolous explosion that happens during the piece, which Landreth says, "I put in there, frankly, only because I could." PowerAnimator's Digital OptiF/X were used to create the burst of light at the beginning of the explosion with lens flares, streaks, and halos added to give the scene a sense of realism. The particle system was also used to create a soft diffusion effect of smoke billowing out from the source of the explosion. PowerAnimator's particle system and Digital OptiF/X were again combined to produce the very lifelike animation of the candle flames.

"PowerAnimator is an incredibly powerful tool with a lot of depth to it," says Landreth. "It gives advanced users a lot of choices and room for creativity. At the same time, it provides defaults for novice users so they can get a good first approximation of what hair or fur or explosions should look like. From the default, it's simple to tune things to very fine detail because there are so many different options." In the production of *the end*, Landreth says, "PowerAnimator gave me all the power and freedom I needed to realize my creative vision and delivered it with an intuitive user interface that complemented my artistic workflow. It's a very cool product!"

— Chris Landreth

Using ShapeShifter™ and Sound Sync, Landreth created lifelike facial animation with speech synced to an actor's voicetrack.



CUSTOMER

Independent Artist Chris Landreth

APPLICATION

the end

SOFTWARE

PowerAnimator™

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United Kingdom: 44 . 1494 . 441 . 273

The Engineers call it a Posture Input Device

We call it the Monkey

You'll call it a

Breeze!



Just because you're used to a mouse, doesn't mean it's the best way to do character animation.

Grab the Monkey with both hands and experience what the next generation of input devices feel like.

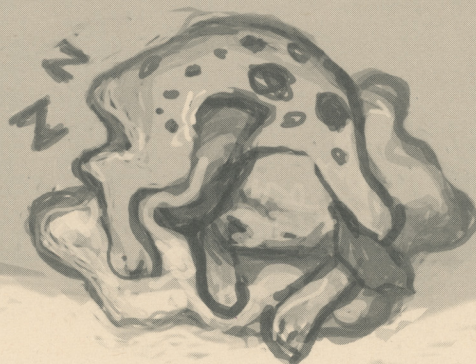
Twist it, bend it, pose it—and watch your character follow in real-time.

It's like a two-foot tall gumby for the wired crowd.

Not only is the Monkey a more intuitive way of getting motion into your computer but it lets you choreograph things that were next to impossible before. And you don't have to wait for expensive equipment or a team of people to become available—the Monkey works on your schedule, not someone else's.

So when the other animators are still at the capture lab, you can be

enjoying one of those little coconut drinks.



T H E M O N K E Y TM

N E W P R O D U C T

MONKEY ACCESSORIES

RECONFIGURABLE MONKEY PARTS The Monkey has always been reconfigurable, we now offer individual and custom joints, links, sensors, controllers.

MONKEY SWITCHBOX Allows up to seven binary inputs to the Monkey controller box. For keyframe setting, recalibration, undo, and other functions.

MONKEY FINGER SWITCHES Push-buttons to plug into the Monkey Switchbox. One push-button included with each Monkey Switchbox.

MONKEY FOOT SWITCHES Musician's heavy-duty foot switches that plug in, too. They leave your hands free for animating.

D E V E L O P M E N T S

UNDER DEVELOPMENT

MONKEY PUPPET Suspended, looser, reconfigurable Monkey; used for weightless or puppet-like real-time motion capture.

MONKEY WALKER Supports any Monkey over any surface. Allows more mobility and interaction than the standard post.

MONKEY TRACKER Mount for magnetic 6D tracking devices. Tells you where any Monkey is in space.

MONKEY VARIABLE-HEIGHT POST Allows up and down movement of Monkey, from a crouch to a leap. Allows animator to get a better feeling of weight.

T E C H N I C A L S P E C I F I C A T I O N S

ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE

ARMATURE SPECIFICATIONS

PHYSICAL DIMENSIONS

All measurements are approximate

1/3 scale human model (based on 50th percentile male)

Height (with base): 25" (635mm)

Weight (with base): 13 lb. (5.9kg)

INPUT SENSORS

Sealed conductive plastic potentiometers

Analog to digital converter output 10 bits

36 mounted on armature joints

3 between armature and base

1 extra sensor

7 binary inputs (optional)

ACCURACY

The potentiometers have been tested to 10,000 cycles

They are rated by the manufacturer for a lifetime of 50,000 cycles.

SENSOR LOCATIONS

The X axis runs left to right, Y from bottom to top,

Z from back to front

JOINT	X AXES	Y AXES	Z AXES
NECK	•	•	•
SPINE	•	•	•
CLAVICLES		•	•
SHOULDERS	•	•	•
ELBOWS	•		
WRISTS		•	•
HIPS	•	•	•
KNEES	•		
ANKLES	•	•	
METATARSALS	•		
BASE	•	•	•

JOINT TORQUE

Completely adjustable with included tools

CONTROLLER SPECIFICATIONS

RESOLUTION

Approximately 1/4 (.26) of a degree

Of the 10 bits returned by the A/D converter, the numbers between 100 and 923 relate in a roughly linear fashion with joint angle

BAUD RATES

9.6, 19.2, 38.4, 57.6, 115.2 kbps

DATA REPORTING MODES

Demand (polling) and Streaming (continuous) modes; software selectable

Any combination of the 40 channels can be selected to be reported to the computer

THROUGHPUT

30 full records (40 channels long) at 38.4kbps in Streaming mode

FRONT PANEL INDICATORS

4 LEDs: power, transmit, receive, motion

COMPUTER INTERFACE CONNECTION

RS-232 DB-9 (socket) wired as IBM PC standard serial device

DAISY-CHAINING CAPACITY (OPTIONAL)

Up to 16 devices through built-in port

POWER REQUIREMENTS

External 9VDC 500mA: appropriate 120VAC powered adapter supplied

